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Spring/Summer '95

# Communication Equipment Catalog

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**NEW**

# DX-70T

## NOW THE EXCITEMENT REALLY BEGINS!

Enter a completely new dimension in HF enjoyment with the hottest transceiver today: Alinco's DX-70T. This incredibly compact 100 watt delight is priced comparable to its size, yet loaded with today's most wanted features, including all-mode 6 meter operation. It is the perfect new rig for newcomers, pros and everyone demanding top value in a go-anywhere, do-it-all transceiver. Alinco's DX-70T is ready to go where you go---do what you do, and proudly tell the world about it! Now this is hamming!

### Features Galore!

The DX-70T operates 160 through 6 meters, includes general coverage reception, dual VFOs, 100 tunable memories, and 38 CTCSS tones for 6 and 10 meter FMing. It also has IF shift, wide and narrow CW filters, selectable semi and full CW break-in, RF preamp, attenuator and high performance noise blanker---all built in! Alinco's DX-70T puts you on top of all the action!

### A Mobile Treat!

The DX-70T fits in the smallest space, and its removable front panel can be mounted right on your auto's dash or console for a custom installation. It has a large tuning knob plus a separate multi-function sub tuning knob with 100KHz steps for quick and easy frequency shifts.

### Enjoy With Confidence!

The easy-to-operate DX-70T is an outstanding performer, exceptionally reliable and backed with a full one year warranty. Your total enjoyment is guaranteed!

### Features

- \* Frequency Range  
160-6meters(Tx)  
150 KHz-30MHz, 50-54MHz(Rx)
- \* Power Output:  
1.8-30MHz SSB, CW, FM: 100 watts  
(50 watts low, 40watts AM)  
50-54 MHz: SSB, CW  
FM: 10 watts (4watts AM)
- \* Dual VFOs
- \* 100 tunable memory channels
- \* Semi and full CW break-in
- \* Wide and narrow/500Hz CW filters included
- \* Separate RIT and TXIT controls ( $\pm 1.4\text{kHz}$ )
- \* Auto SSB mode select W override
- \* 38 CTCSS tones for deluxe FMing
- \* Noise Blanker
- \* Selectable RF preamp and attenuator
- \* Subdial for bands, memories, tuning
- \* World's smallest 100W HF xcvr: 2.25 x 7 x 9 inches(H.W.D.)
- \* Weight 6.2 lbs.
- \* DC cable, mic included
- \* Optional 5 ft. remote cable
- \* Optional mobile mount bracket
- \* Optional manual antenna tuner

This device has not been approved by the Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased until the approval of the FCC has been obtained.



**ALINCO**  
ELECTRONICS INC.

438 Amapola Ave., #130, Torrance, CA 90501

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**ALINCO**  
ELECTRONICS INC.

# 2 METER HANDHELDS



## DJ-180T

\$289.95

## DJ-180T-TH

\$309.95

Suggested List Prices  
Call for Quotes

- Odd repeater offsets can be programmed from 0 to 15.998 MHz in 5 kHz steps. A different repeater offset can be stored in each memory channel.

- Memory features include storage of repeater offset, shift direction, CTCSS encode, and tone squelch.

- Two watts power output is standard. Up to 5 watts is available with optional 12 VDC battery packs.

- Automatic power-off function allows the DJ-180T to be programmed to shut itself off when left dormant for a predetermined time.

- A full range speaker and crisp clean audio circuitry combine to bring you unbelievably great sound.

- The standard battery is a 7.2 volt 700 mAh rechargeable NiCd battery. The unit comes with a wall charger.

- A low battery indicator LCD lets you know when it is time to recharge your NiCd.

- Enjoy extended receive frequency coverage 130-173.995 MHz.

Just when you thought great audio and tough-as-nails construction were luxury features available only on the most expensive models, and just when you thought simple, intuitive operation was a thing of the past, along comes the Alinco DJ-180T.

This tiny, handheld transceiver offers 5 watts output. The command keys are laid out so you will not have to spend hours studying the manual. You don't need a magnifying glass to see the large 16 digit DTMF pad and illuminated LCD display.

Features include:

- Expandable memory. The DJ-180T comes standard with ten memory channels including one call channel. It can be upgraded to 50 or 200 memory channels with the optional EJ-14U (50 channels) or EJ-15U (200 channels).



## DJ-G1T

\$369.95

Suggested List Prices  
Call for Quote

Built-in  
Spectrum  
Analyzer

Receives  
440 MHz

The DJ-G1T, offers the new "Channel Scope" built-in Spectrum Analyzer. This remarkable feature lets you visually monitor band activity. The oversized display shows seven bar graphs, each of which can be assigned to an independent memory channel. Seven different memory channels are monitored simultaneously. If one or more memory channels become active, the corresponding bar graph lets you know and also gives you information on apparent signal strength.

Outstanding features include:

- 440 MHz receive and AM aircraft receive.
- 80 memory channels with 5 autodialer memories.
- Programmable delay for autodialer.
- DSQ for Private Paging.
- Exceptional audio quality (True FM).
- Cross-Band Semi Duplex.
- CTCSS Encode built-in.
- 6 Scan Modes.
- Odd-Splits on all memory channels.
- Shows band activity in frequency domain in 5, 10, 12.5, 15, 20, 25, 30 or 50 kHz steps.



## DJ-F1T-TH

5-Watt 2m

\$379.95

## DJ-F1T

2-Watt 2m

\$349.95

Suggested List Price  
Call for Quotes

Alinco has overcome the size and durability problems experienced with many "micro" handhelds with the DJ-F1T. It offers reliability and performance that is the best in its class. The unique battery design allows for a full size keypad and a large speaker packaged in a cast aluminum frame and poly-plastic case. Choose the 2-Watt or 5-Watt model.

Features include:

- Wide band receiver 135-170 MHz (AM 118-136 MHz with mod).
- Digital frequency display and memory function.
- Pager and DTMF code squelch.
- 5 watts output. (Also available in a 2-watt version: the DJ-F1T.)
- 40 memory channels store frequency, shift, split, tone information, offset, DSQ setting.
- 8 scan modes, dual watch and priority.
- Six channel steps: 5, 10, 12.5, 15, 20 & 25 kHz.
- Programmable VFO range function.

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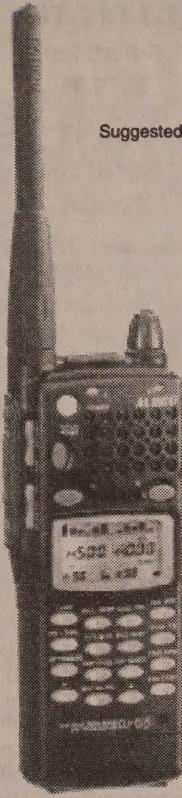


**ALINCO**  
ELECTRONICS INC.

# DUAL-BAND HANDHELDS

**DJ-G5T**  
**\$TBA**

Suggested List Price—Call for Quote



**NEW!**

- Full-duplex, cross-band repeater capability.
- 80 memory channels.
- Channel Scope.
- Auto dialer with up to 20 memories.
- Receives 108-173.995 & 420-470 MHz FM. Receives AM on 108-173.995 MHz.
- Airband receive with no modification.
- Band scan, programmed scan or memory scan.
- Cloning function.
- Tone burst function.
- Low battery indicator, automatic power off and time out timer (TOT).

This device has not been approved by the Federal Communications Commission. This device is not, and may not be, offered for sale or leased until the approval of the FCC has been obtained.

The newest dual band handheld from Alinco is packed with features in a rugged, mini-sized package.

Features include:

- 5 watts output on both VHF and UHF with 13.8 VDC.
- Built-in CTCSS encoder / decoder.



**DJ-580T**  
**\$499.95**

Suggested List Price—Call for Quote

This outstanding dual-band handheld transceiver covers 2 meters and 440 MHz. Most features are standard. It gives you plenty of power and great audio.

Major features include:

- 2 watts output on 2m & 70cm. 5W with the optional EBP-22 battery.
- Built-in CTCSS encoder / decoder.
- Full-duplex, cross-band repeater capability.
- 40 memory channels (any combination of VHF and UHF).
- Separate volume and squelch controls for each band.
- Back-lit keypad.
- Receives 135-174 & 420-470 MHz. AM 118-136 MHz with modification.
- Easily modified for MARS and CAP operation (proper license required).



**DJ-582T**  
**\$499.95**

Suggested List Price  
Call for Quote

**NEW!**

The DJ-582T has the same features as the DJ-580T plus the following:

- Bigger, bold keypad buttons.
- Easier to grasp control knobs.
- Bright red TX LED.
- Accelerated scanning speed.
- AM aircraft RX standard.
- LCD will display memory frequency or channel number.
- Custom molded antenna.

## Alinco Handheld Specifications

Model	Type	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memories	Ant Z	Mike Z	Sensitivity	Height in	Width in	Depth in	Weight lbs
DJ-G1T	Handheld	2 m	13.8 VDC	1.5 A	120 mA	5 W	80	50 Ω	2k Ω	<.15 μV at 12 dB	4.5	1.9	1.4	0.79
DJ-G5T	Handheld	2m / 440 MHz	13.8 VDC	1.4 A	85 mA	5 W	80	50 Ω	2k Ω	<.16 μV at 12 dB	5.4	2.24	1.1	0.77
DJ-180T	Handheld	2 m	13.8 VDC	1.05 A	130 mA	2 - 5 W	10†	50 Ω	2k Ω	<.15 μV at 12 dB	5.2	2.3	1.3	0.77
DJ-180T-TH	Handheld	2 m	13.8 VDC	1.05 A	130 mA	2 - 5 W	10†	50 Ω	2k Ω	<.15 μV at 12 dB	5.2	2.3	1.3	0.77
DJ-F1T-TH	Handheld	2 m	13.8 VDC	1.4 A	130 mA	5 W	40	50 Ω	2k Ω	<.15 μV at 12 dB	4.3	2.1	1.5	0.83
DJ-580T	Handheld	2m / 440 MHz	13.8 VDC	1.5 A	120 mA	5 W / 5 W	40	50 Ω	2k Ω	<.15 μV at 12 dB	6.65	2.24	1.23	0.97
DJ-582T	Handheld	2m / 440 MHz	13.8 VDC	1.5 A	120 mA	5 W / 5 W	40	50 Ω	2k Ω	<.15 μV at 12 dB	6.65	2.24	1.23	0.97

† Optional upgrades to 50 or 100 memories. \*\* Power output is determined by choice of battery pack.

# HANDHELD ACCESSORIES

## Alinco Handheld Accessories

	DESCRIPTION	F1T	F1T-HP	G1T	162TD	162T	180T 180TH	560TA	580T	HRO	Price
EBP-10NA	Ni-Cd Battery (7.2V 700 mAh)				*	std		std			\$45.95
EBP-12NA	Ni-Cd Battery (12V 700 mAh)				*	*		*			\$62.95
EBP-16N	Ni-Cd Battery (7.2V 700 mAh)	std	*								\$47.95
EBP-18N	Ni-Cd Battery (12V 600 mAh)	*	std								\$76.95
EBP-20N	Ni-Cd Battery (7.2V 700 mAh)								std		\$52.95
EBP-22N	Ni-Cd Battery (12V 700 mAh)								*		\$80.95
EBP-24N	Ni-Cd Battery (7.2V 1200 mAh)						*				\$79.95
EBP-26N	Ni-Cd Battery (7.2V 700 mAh)						std				\$52.95
EBP-28N	Ni-Cd Battery (12V 700 mAh)						*				\$80.95
EBP-30N	Ni-Cd Battery (7.2V 700 mAh)			*							\$62.95
EBP-31N	Ni-Cd Battery (7.2V 1200 mAh)			*							\$79.95
EBP-32N	Ni-Cd Battery (12V 700 mAh)			*							\$95.95
EBC-6	Mobile Bracket			*			*				\$15.95
EDC-16	Cigarette Lighter Cable/Charger				*	*		*			\$15.95
EDC-21	AC Battery Charger ENP-10				*	std		std			\$22.95
EDC-22	AC Battery Charger EBP-12N				*	*		*			\$21.95
EDC-24	AC Battery Charger EBP-20N	std	std				std		std		\$26.95
EDC-26	Cigarette Lighter Cable/Charger				*	*		*			\$19.95
EDC-34	Quick Charger	*	*		*	*	*	*	*		\$103.95
EDC-36	Mobile DC power cable with filter			*							\$22.95
EDC-37	13.8 volt power cable			*							\$9.95
EDC-43	Cigarette Lighter Cable										\$10.95
EDC-49	Wall Charger						*		*		\$24.95
EDC-52	Quick Charger (EBP-30N/31N/32N)			*							\$119.95
EDC-55	Wall Charger (EBP-30N/31N/32N)			*							\$22.95
EDH-1	Dry Cell Battery Case					std	*		*		\$19.95
EDH-5	AA Dry Cell Case	*	*								\$19.95
EDH-6	Dry Cell Case								*		\$18.95
EDH-11	Dry Cell Case							*			\$21.95
EDH-12	DC Jack Adaptor for ext pwr							*			\$12.95
EDH-14	Dry Cell Case			*							\$21.95
EJ-6U	Tone Squelch Unit					*	*				\$48.95
EJ-12U	Tone Squelch Unit	*	*								\$52.95
EJ-14U	50 Memory Channel Unit							*			\$23.95
EJ-15U	200 Memory Channel Unit							*			\$34.95
EJ-16U	Tone Squelch Unit			*							\$60.95
EME-4	Ear/microphone w/PTT			*					*		\$34.95
EME-6	Earphone			*					*		\$14.95
EMS-2Z	Speaker Microphone				*	*		*			\$44.95
EMS-8Z	Remote Control Speaker Mic	*	*	*						*	\$48.95
EMS-9	Speaker Microphone			*				*			\$44.95
EME-10	Headset with VOX	*	*		*	*		*	*		\$71.95
EME-11	Earphone Mic with PTT	*	*							*	\$52.95
EME-12	Headset w/ear hook VOX & PTT			*				*			\$72.95
EME-13	Headset with VOX			*				*			\$72.95
EME-15	Tie pin microphone							*			\$55.85
ESC-10	Leatherette Case for EBP-10				*	*					\$23.95
ESC-11	Leatherette Case for EBP-10								*		\$21.95
ESC-17	Leatherette Case									*	\$22.95
ESC-18	Leatherette Case EBP-24N							*			\$22.95
ESC-19	Leatherette Case EBP-28N							*			\$22.95
ESC-23	Soft Case (EBP-30N)			*							\$22.95
ESC-24	Soft Case (EBP-31N/32N)			*				*			\$23.95

## 6-Meter Mobile


**DR-M06T**
**\$499.95**

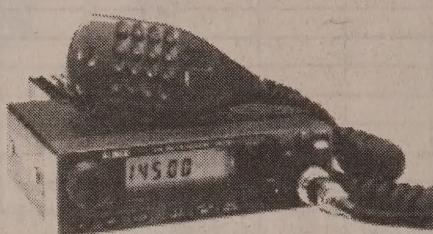
 Suggested List Price  
 Call for Quote

Alinco's DR-M06T is designed especially for 6 meter operation. This FM transceiver provides a powerful 10 watts output and has many of the features of the popular DR-130T.

## Features include:

- Frequency range from 50 to 54 MHz.
- 5, 10, 12.5, 15, 20 and 25 MHz tuning steps.
- 100 memory channels.
- Highly visible color LCD display.
- Four scanning modes: VFO, memory, programmed and priority.
- Built-in 50 tone programmable encode and optional decoder allow restricted access operation.
- The standard mike includes UP / DOWN buttons and DTMF encoder.
- F3E (FM) modulation.
- 10 watts or 1 watt power output.
- 30 – 450 second time-out timer.

**DR-130T**
**2m**
**\$419.95**
**DR-430T**
**440 MHz**
**\$499.95**

 Suggested List Prices  
 Call for Quotes


These FM mobile transceivers for 2 meters and 440 MHz condense maximum performance and operating convenience into ultra compact packages. Their impressive features provide maximum flexibility in VHF FM mobile installations.

## Features include:

- 50 watts (DR-130T) and 35 watts (DR-430T) RF output with a HI / LO switch.
- Compact size and lightweight.
- 20 multifunction memories are fully programmable. Each channel stores operating frequency and standard offset. Expands to 100 memories with optional EJ-19U.
- Highly visible color LCD display.
- Four scanning modes: VFO, memory, programmed and priority.
- Built-in programmable encode and optional decoder allow restricted access operation.
- The standard microphone includes UP / DOWN buttons and DTMF encoder.


**NEW!**
**DR-150T**
**\$479.95**

Suggested List Prices - Call for Quotes

Engineered for satisfaction, the new DR-150T sets a new industry standard for 2 meter radios. It features up-to-the-minute technology and a full powered 50 watts.

Enjoy visual scanning capability of multiple frequencies along with simultaneous receive audio. While in the channel scope mode, activate the scan function and quickly access only those frequencies that show a strong signal. The "s-meter" squelch control has 8 adjustable settings for custom operation.

Alinco has designed a new Safety Dialer which allows the operator to use the autodialer by just pushing the up/down button on the mike.

## Features include:

- 50 watts high output, 25 watts medium, and 10 watts low.
- Receives 108-173.995 MHz and 440-449.995 MHz. Transmit 144-147.995 MHz.
- 100 memory channels, 1 call channel, 1 program scan frequency memory.
- Channel Scope (Visual Search). 2 VFO's.

Plus many other features

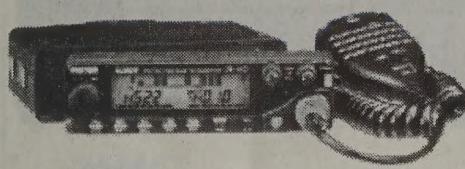
**Alinco Mobile Specifications**

Model	Primary Use	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out	Memories	Ant Z	Mike Z	Sensitivity	Height in	Width in	Depth in	Weight lbs
DR-130T	Mobile	2 m	13.8 VDC	9.5 A	500 mA	50 W	20*	50 Ω	600 Ω	<.16 μV at 12 dB	1.6	5.5	6.75	2.42
DR-150T	Mobile	2 m Trans	13.8 VDC	10 A	600 mA	50 W	100	50 Ω	600 Ω	<.16 μV at 12 dB	1.6	5.6	6.2	2
DR-430T	Mobile	440 MHz	13.8 VDC	9.5 A	500 mA	35 W	20*	50 Ω	600 Ω	<.16 μV at 12 dB	1.6	5.5	6.75	2.42
DR-M06T	Mobile	6 m	13.8 VDC	3.0 A	600 mA	10 W	100	50 Ω	600 Ω	<.16 μV at 12 dB	1.6	5.6	4.6	2.42
DR-600TB	Mobile	2m/440 MHz	13.8 VDC	10 A	800 mA	45 W/35 W	28	50 Ω	600 Ω	<.16 μV at 12 dB	2.0	5.9	7	3.3
DR-610T	Mobile	2m/440 MHz	13.8 VDC	11.5 A	1.2 A	50 W/35 W	120 †	50 Ω	600 Ω	<.16 μV at 12 dB	1.6	5.6	6.5	2.45

\* Expand to 100 with optional EJ-19U    †Expand to 240 with optional EJ-23U

# VHF/UHF/HF MOBILES

## Dual-band Mobiles



**DR-610T**  
**\$TBA**

Suggested List Price  
Call for Quote

This device has not been approved by the Federal Communications Commission. This device is not, and may not be, offered for sale or leased until the approval of the FCC has been obtained.

Alinco continues to make advancements in dual band mobile transceivers. The 2m/70 cm DR-610T just what is needed for mobile or base station operation.

### Features include:

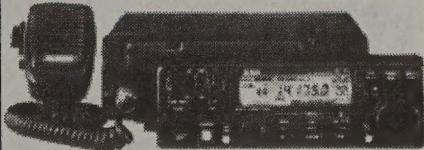
- 50 watts VHF and 35 watts UHF.
- Built-in duplexer.
- Built-in CTCSS tone encoder. Decoder is optional.
- 2 VFO's.
- 120 memories plus split channel, call channel and program scan memory. Expandable memory with optional EJ-23U (120 more memory channels).
- Extended Receive Range: 108-174 MHz (including AM) and 420-470 MHz.
- 5 channel auto dialer.
- Band, programmed, or memory scan.
- 9600 bps ready with built-in I/O jack.
- Airband receive standard.
- Expanded UHF TX frequencies (430-449.995 MHz).
- Channel scope.
- Cross band repeater function.



**DR-600TB**

**\$749.95**

Suggested List Price  
Call for Quote



**DX-70T**  
**\$TBA**

Suggested List Price  
Call for Quote

Alinco has announced an HF transceiver for mobile operation. It covers the HF ham bands plus 6 meters in a package the size of most VHF mobile transceiver.

It provides 100W output from 1.8-30MHz and 10 watts on 6 meters. The detachable control head aids mobile installation. It has full QSK for CW operation. The 100 memory channels, built-in RF preamplifier, noise blanker and dual VFO are standard features.

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### Also E-Mail:

West Coast, Ken, K1ZKM:  
KLM@NETCOM.COM

East Coast, Chuck, KM4NZ:  
CWYRICK@CWYRICK.MV.COM

## Alinco Mobile Accessories

Model	Description	DR-M06	DR-130T DR-430T DR-M06T	DR-119T	DR-150T	DR-1200T DR-1200TH	DR-570T	DR-590T	DR-599T DR-592T	DR600T	HRO Price
EJ-7U	Tone Squelch Unit							*	*	*	\$69.95
EJ-8U	DTMF Unit							*	*	std	\$47.95
EJ-19U	Memory Expansion		*								\$35.95
EJ-20U	Tone Squelch Unit	*	*		*						\$46.95
EDC-19	Mounting Kit 9'10" Cable							*	*	*	\$40.95
EDC-20	Mounting Kit 16'5" Cable							*	*	*	\$46.95
EMS-3	Remote Control Microphone with DTMF					*		std	std	std	\$65.00
EMS-5	Remote Control Microphone with DTMF										\$63.95
EMS-10	Remote Control Microphone with DTMF			std							\$56.95
EMS-11	Remote Control Microphone with DTMF	std									CALL
PC-15	Power Cord (15 A)			*		*	*	*	*	*	\$13.95
PC-15B	Power Cord		*		*						\$13.95
MB-110	Mounting Bracket with Spring			*		*					\$20.95
MB-130	Mounting Bracket			*		*					\$20.95
MB-570	Mounting Bracket without Spring							*	*	*	\$20.95

† Microphone available only for the DR-1200T



**NEW!**

**IC-775**  
**\$TBA**  
**IC-775/DSP**  
**\$TBA**  
 Suggested List Prices  
 Call for Quotes

IC-775, IC-775/DSP - These devices have not been approved by the Federal Communications Commission. These devices are not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.

Serious DX'ers require serious equipment. While the IC-775/DSP may be fun to operate it was engineered from the ground up using high-quality components and offering features and performance you will find nowhere else. The basic model IC-775 may be upgraded to the IC-775/DSP with the optional UI-100 unit.

Major features include:

- Digital noise reduction with the DSP feature providing outstanding signal to noise ratio for clean receive signals.
- Digital automatic AF notch.
- Digital low pass and high pass filters.
- Digital ultra-narrow CW filter.
- Digital automatic audio peaking filter.
- MOS-FET finals.

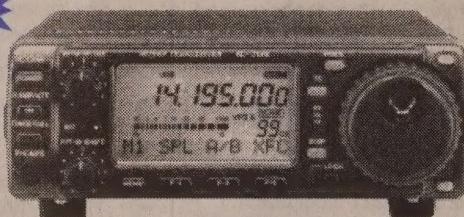
- Twin passband tuning, noise blanker and AGC.
- Direct Digital Synthesizer (DDS) for frequency stability.
- High performance general coverage receiver.
- Built-in antenna tuner.
- Built-in memory keyer and QSK function.
- Data mode for RTTY, SSTV or packet operation.

**IC-706**

**\$TBA**

Suggested List Price  
 Call for Quote

IC-706 This device has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.



The smallest HF transceiver available is Icom's IC-706 HF all-mode. It is 17% smaller than its competition and is available at an affordable price. It features a removable front panel that permits remote operation. It is user friendly with large, easy to read dials and displays.

Other features include:

- Large alphanumeric LCD display.
- Programmable soft keys.

- Split operation, dual VFO's.
- 100 watts on HF bands and 6 meters.
- Noise blanker, AGC and narrow filter selection.
- VOX operation.



This HF all-band transceiver is designed for ease of use and for mobile operation. Functions such as passband tuning and speech processing supplement all the basic features.

Major features include:

- General coverage, triple conversion receiver 500 kHz - 30 MHz.
- SSB, CW and AM receive are standard. AM transmit and FM operation are available with the optional UI-7.

- Utilizes Icom's Direct Digital Synthesizer. 26 memory channels with dual VFO.
- Passband tuning and speech compressor. CW break-in with adjustable delay.
- Multiple scanning abilities. 10 Hz minimum step tuning plus RIT.



**IC-736**

**\$2385.00**

Suggested List Price - Call for Quote

Now you can work all of the HF bands plus a most exciting amateur band — 6M. The IC-736 is an all band, all mode transceiver with a general coverage receiver. Only an antenna, coaxial cable and AC outlet are necessary to get this rig up and running. The IC-736 has a built-in power supply and an internal antenna tuner usable for both HF and 50 MHz bands. You are provided with 1 Hz indication and quick split with pre-programmable offset function.

Other features include:

- 500 kHz - 29.995 MHz and 45 MHz-60 MHz receive. DDS (Direct Digital Synthesizer) provides frequency resolution to 1 Hz. RIT and XIT independently change receive and transmit frequencies—great for split frequency operation.
- Automatic antenna tuner with present memories for each 100 kHz step. 10 - 160 M as well as 6 meters.
- Two antenna connectors which includes an automatic antenna selector. In each band, the band memory memorizes the selected antenna eliminating the need to manually change an antenna when you change bands.
- 100 W of output power is provided for all amateur bands including 50 MHz using MOS-FET driver and final amplifier stages. Finals are kept cool with a die cast aluminum frame and 2 large fans permitting 100% duty cycle operation.
- 101 memory channels include 10 split memories and 2 scan edges.
- Double band stacking register for all bands memorizes 2 frequencies along with modes in each band so it can be used like two VFO's in one band.
- Pass band tuning and AF notch help reduce interference during crowded band conditions.
- Up to 10 electronic "Memo Pads" can be used during contests or while DX hunting. Catch a station, temporarily store the frequency by pushing the memo-pad write button.
- PWR, ALC, power out, and s- reading meter functions.
- Full(QSK) break-in CW operation allows you to receive signals between transmitted keying pulses. Semi-breaking operation also provided. Separately designed CW key jacks allow you to connect both a memory keyer and a paddle - great for contest operations.
- Offset frequencies for Quick Split can be pre-programmed. Split Lock prevents you from mistakenly changing the receive frequency while adjusting the transmit frequency.

# HF TRANSCEIVERS



## IC-738

**\$1935.95**

Suggested List Price—Call for Quote

The IC-738 is more than simply a successor to the IC-737A. It brings the HF enthusiast a host of new features including 1 Hz indication, an antenna tuner with automatic re-tune function, quick split with pre-programmable offset function, transmit meters, RF gain control, and more.

Major features include:

- AUTOMATIC ANTENNA TUNER – The built-in antenna tuner is fully automatic. Preset memories for each 100 kHz step provide high speed tuning. It features automatic tuner start when the SWR is higher than 1.5:1. A through inhibit lets you use the rig with an SWR up to 3:1. The tuner automatically starts tuning when the SWR is higher than 1:5:1. If you want a minimum SWR, the sensitive condition tunes the antenna each time you transmit.
- METER FUNCTIONS – The meter reads power and ALC while transmitting. It is an S-meter during receive.
- SEPARATE CW KEY JACKS – This allows the connection of an external keyer plus use of the internal keyer.
- RF GAIN CONTROL – The RF gain control adjusts the receiver gain continuously to reduce undesired signal reception. Signals stronger than the S-meter indication can be received.
- QUICK SPLIT FUNCTION – The improved quick split function can have the offset preprogrammed.

- AUTOMATIC ANTENNA SELECTOR – The IC-738 has two antenna connectors that can be automatically selected. The antenna connectors are not designed for a particular band.
- DDS IC TO 1 Hz – The new DDS IC is used to improve the frequency resolution to 1 Hz. This provides a feeling of analog fine tuning to the VFO. One dial rotation is equal to 200 Hz.
- 100 W OUTPUT – The final transmitter outputs 100 watts in SSB, CW and FM modes on all amateur HF bands and operates at 100% duty cycle.
- SET MODE – The IC-738 has a set mode for programming infrequently changed values or functions. Up to 15 items can be changed.
- OTHER FEATURES:
  - Double band stacking registers.
  - Memo pad functions.
  - Pass Band Tuning.
  - AF notch.
  - 101 memory channels.
  - Programmed, memory, and select memory scanning.
  - Full and semi-break-in operation.
  - Noise blower.

## Icom HF Specifications

Model	Receive Freq Range	Power Supply	Current Drain Xmit	Power Output					Mike Z	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch Atten	Audio
				AM	FM	SSB	CW	FSK						
IC-706		13.8 VDC												
IC-728	500 kHz - 30 MHz	13.8 VDC	20A	40	100	100	100		600 Ω	Triple Conversion	<16µV at 10 dB	±1.2 kHz		>2.6 W
IC-736	#	120 VAC	500 VA	40	100†	100†	100†		600 Ω	Triple Conversion	<15µV at 10 dB	±1 kHz		>2.6 W
IC-738	100 kHz - 30 MHz	13.8 VDC	20 A	40	100	100	100	100	600 Ω	Triple Conversion	<15µV at 10 dB	±9.9 kHz		>2.6 W
IC-775/DSP														
IC-781	100kHz - 30MHz	120VAC	760 VA	75	150	150	150	150	600 Ω	Quadruple Conversion	<16µV at 10 dB	±9.9 kHz	45 dB	>2.6 W

† Output is continuously adjustable from 5 to 100 W

# 500 kHz - 29.995 MHz and 45 - 60 MHz



## IC-781

**\$8835.00**

Suggested List Price—Call for Quote

Here is the ultimate amateur HF transceiver. The radio is delivered complete. The only internal option available is the FL-103 wide SSB filter. It is the optimum radio for contesting, DX chasing or just rag chewing.

Major features include:

- An advanced spectrum scope analyzer with a 5-inch CRT shows status of the radio on two menu screens and 17 operational screens including displays of memory channels, sleep and daily times, built-in clocks and packet terminal monitor. Multiple scanning modes.
- Built-in automatic antenna tuner permits fast tuning for each band by remembering band settings. Tunes SWR up to 3:1. 150 watt output transmitter.
- Full break-in keying. Multifunction keyboard controls radio operation.
- Dual Watch (dual receive). Twin bandpass tuning. Noise blower, APF and notch filter.
- Band stacking registers. All modes of operation: SSB, CW, RTTY, FM and AM.
- Direct Digital Synthesizer (DDS) System provides low phase noise and rapid PLL lock up time. Fast T/R switching makes this perfect for packet and AMTOR.

We Accept



## Icom Base Station Accessories

OPTIONS		HF RADIOS										VHF / UHF RADIOS						RECEIVERS						Suggested List		
		781	765	751A	738	737A	736	735	729	728	726	725	707	575H	275H	475H	820H	970	R9000	R71A	R72	R100	R7000	R7100		
External AC Power Supply	PS-15			*	*								*												\$330.95	
	PS-55			*	*	*		*	*	*	1	1	*	*	*	*	*								\$345.95	
	PS-30			*	*	*		*	*	*	*	*													\$470.95	
Internal AC	PS-35			*																					\$239.95	
	SP-3	*	*	1	*	*		*	*	*	*	*	*	*	*	*	*	*	*	1	*	*	1	*	\$102.95	
External Speakers	SP-7			*	*	*		1	*	*	1	1	*	1	1	1	*		*	*	*	*	*		\$68.95	
	SP-20	1	1	*	*	*		*	*	*	*	*	*	*	*	*	*		1	*	*	*	*	*		\$225.95
HF Linear Amplifiers	SP-21			*	*																					\$100.95
	2KL	2	2	*	*	*		2	*	*	2	2	*													\$2,710.00
4KL	*	*	6	*	*		*	*	*	*	*	*														\$9,000.00
	AH-2a	*	6					*	*																	\$691.95
Automatic Antenna Tuners	AH-3			*	*			7	*	*	*	*														\$594.95
	AT-150			6	*	*		*	*	*	*	*														\$539.95
Antenna Selectors	AT-160																									\$442.95
	AT-500	*	*	*	*			2	*	*	2	2	*													\$995.95
Antennas	EX-20																	*								\$96.95
	EX-627	*	*	6	*	*		*	*	*	*	*														\$373.95
Weather Proof Preamps	AH-2B	*	*	*	*			*	*	*	*	*														\$275.95
	AH-610																									\$137.95
Microphones	AG-25																									\$160.95
	AG-35																									\$160.95
Mounting Brackets	AG-1200																									\$139.95
	HM-36	*	*	*	std	std		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		\$54.95
Handles	SM-6	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		\$93.95
	SM-8	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		\$145.95
Remote Controllers	SM-20	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		\$188.95
	MB-5							*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		\$42.95
TV Adapters	MB-12																									\$43.95
	MB-18			*																						\$43.95
CI-V System	MB-49						*	*																		\$49.95
	MB-19	3	*															3							\$54.95	
High Stability Crystal Units	MB-23							*	*	*	*	*	*	*	*	*	*	*								\$11.99
	TV-R7000																									\$270.95
Keyer Unit	TV-R7100																									\$310.95
	TV-970																									\$510.95
FM Unit	TV-1275																									\$340.95
	CT-16	*	*	4	*	*			*	*	*	*	*	*	*	*	*			*	4					\$116.95
Tone Encode	CT-17	*	*	4	*			*	*	*	*	*	*	*	*	*	*		*	4	*	*	*			\$123.95
	UX-14	*																								\$90.95
AM-FM Unit	CR-64	*							*	*	*	*		*	*	*	*									\$114.95
	CR-263																									\$123.95
Tone Squelch	CR-282	*	*	*	*																					\$119.95
	CR-293																									\$276.95
Voice Synthesizer	CR-338												*													\$59.95
	EX-243	3		*																						\$100.95
UT-30	EX-257																									\$79.95
	UI-8																									\$86.95
UT-34	UI-9																									\$86.95
	UT-50																									\$86.95
UT-36	EX-310		*																							\$77.95
	UT-36	*	*																							\$54.95

1: Style and size are matched with the equipment. 2: An optional OPC-118 CABLE is required. 3: Included. 4: An optional UX-14 is required.

5: Option unnecessary. 6: An optional OPC-137 CABLE is required. 7: for HF band only.

## Icom HF Tuners

**AH-2**

This automatic HF antenna tuner for the IC-735 is ideal for mobile use since no manual tuning is needed. For indoor or outdoor use. 3.5 MHz to 30 MHz. System includes an antenna (AH-2b), the AH-2a tuner and controller units. The AH-2a (tuner and controller) and the AH-2b (mount and whip) may be purchased separately.

**Suggested List Prices:** AH-2 \$966.95  
AH-2a \$691.95  
AH-2b \$275.95

**AH-3**

The AH-3 automatic antenna tuner operates with the IC-725, IC-728, and IC-729 HF transceivers. Use it with the AH-2b antenna element for mobile operation. The weather-proof design has automatic digital control tuning and eight frequency memories. Suggested List \$594.95

## Icom HF Tuners

Features	AT-160	AT-150	AH-3	AH-2a	AT-500
<b>Input Power (Watts)</b>					
Max	100	100	120	120	500
Min	8	8	10	10	50
<b>Auto Tune Time (seconds)</b>					
New Band	≤3	≤3	2 - 4	2 - 4	4 - 7
Same Band	≤3	≤3	<1	<1	≤3
<b>Tuning Accuracy</b>	VSWR<1.2:1	VSWR<1.2:1	VSWR<1.5:1 with AH2b	VSWR<1.5:1 with AH2b	VSWR<1.2:1
<b>Auto Antenna Selection</b>		4 antennas			
<b>Auto Band Switching</b>	yes	yes	yes	yes	yes
<b>Preset Matching</b>	CPU Controlled	Auto Preset	CPU Controlled	CPU Controlled	yes
<b>Power Supply</b>	13.8 VDC	13.8 VDC	13.8 VDC	13.8 VDC	13.8 VDC 117 AC
<b>Frequency Coverage</b>	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters	1.8-28 MHz	1.8-28 MHz	160, 80, 40, 30, 20, 17, 15, 12, 10 Meters
<b>Radios</b>	Attaches Solidly to 728 & 729	All Icom HF Rigs	Weather resistant 725, 726, 728, 729, 737A,	Weather resistant 735, 751A	All Icom HF Rigs
<b>Suggested Retail</b>	\$442.95	\$580.95	\$594.95	\$691.95	\$995.95

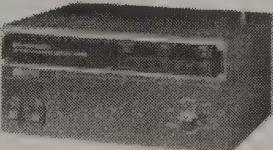
## Icom HF Filters

Filter	Center Frequency	Bandwidth	Mode	781	765	738	737A	736	735	729	728	725	726	707	R71A	R72	R9000	List Price
FL44A	455 kHz	2.4 kHz	SSB		std									*				\$206.95
FL52A	455 kHz	500 Hz	CW	std	std	*	*	*						*			*	\$178.95
FL53A	455 kHz	250 Hz	CW	std	*	*	*	*						*				\$178.95
FL102	9.0100 MHz	6.0 kHz	AM	std	*													\$67.95
FL33	9.0100 MHz	6.0 kHz	AM															\$53.95
FL100	9.0106 MHz	500 Hz	CW			*	*	*		*	*	*		*		*	*	\$96.95
FL32A	9.0106 MHz	500 Hz	CW	std	std				*						*			\$92.95
FL63A	9.0106 MHz	250 Hz	CW						*									\$88.95
FL101	9.0106 MHz	250 Hz	CW	std	*	*	*	*		*	*	*				*		\$96.95
FL70	9.0115 MHz	2.8 kHz	SSB															\$88.95
FL103	9.0115 MHz	2.8 kHz	SSB	*										std				\$89.95

## Icom HF Tuners

**AT-160**

This automatic antenna tuner is designed for the IC-728 / 729. It has a CPU with 9 memories for quick tuning. Attach it easily to the IC-728/729 side panel and control it from the transceiver. Suggested List \$442.95

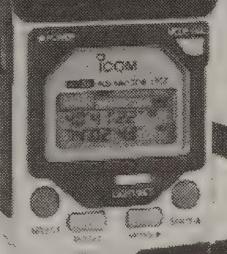
**AT-500**

Fully automatic HF antenna tuner designed for short tune-up time. Automatic band switching (compatible with the IC-2KL linear amplifier). Matching circuit can be preset for each band. Four antenna connections. Maximum input power 500W. AC or DC. Suggested List \$995.95

**AT-150**

This matching tuner for the IC-735 is fully automatic and interfaces directly with the radio. With the appropriate cables, the AT-150 can also be used with the other Icom HF radios. Suggested List \$539.95

## Pocket-Sized GPS



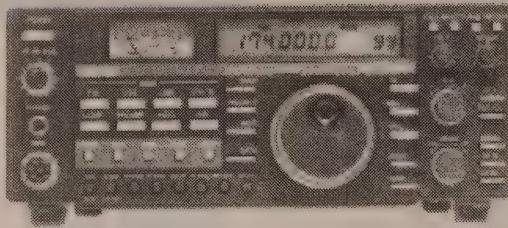
Limited  
Time  
Special

**GP-22**  
**\$479.95**

Icom's GP 22 GPS (Global Positioning System) Receiver gives fast and accurate positioning worldwide in palm-sized dimensions. The GPS-22 combines powerful navigation features and user-friendly operation in a rugged, water resistant body.

Features include:

- 5-channel parallel receiving for positioning fixes tracking up to 5 satellites continuously providing 2- or 3-dimensional fixes.
- Simple Operation with a minimum of controls and a large LCD backlit display.
- Versatile Navigation Functions: positioning fixes, instant destination navigation, route navigation, course and speed over ground (COG/SOG), cross track error, estimated time of arrival (ETA), bearing and range to a waypoint.


**IC-275H**
**\$1915.95**

Suggested List Prices—Call for Quotes

**IC-475H**
**\$2325.95**

Suggested List Prices—Call for Quotes

With their superior performance and features, the famed IC-275H and IC-475H lead the way on the 2 meter and 430 MHz bands. The state-of-the-art DDS (Direct Digital Synthesizer) system enables high speed lockup times and higher carrier-to-noise characteristics and at the same time allows 10 Hz tuning steps. High-speed transmit / receive switching is a packet operators's delight.

Its compact size allows for all-mode operation almost anywhere, even in your vehicle. For satellite communications, connect an optional CT-16 Satellite Interface Unit between these transceivers for automatic tracking of uplink and downlink frequencies.

Major features include:

- 100 watts for IC-275H and 75 watts for IC-475H.
- USB, LSB, CW and FM modes.
- DDS system.
- 99 memory channels.
- Programmable call channel.
- Noise blanker and adjustable IF notch filter.
- CW full/semi break-in capability.
- Programmable offset capability.
- Multiple scan functions.
- AF speech processor.
- Data switch for data communications.
- Optional voice synthesizer and tone squelch units.
- CI-V computer control system.

**IC-575H**
**\$2460.95**

Suggested List

A beautifully sophisticated 28/50 MHz transceiver designed for those who are serious about DX'ing. All the latest in Icom's innovative technology including 100 watt output power, DDS System, CW full / semi-break-in capability has gone into a compact body. To get propagation information, receive overseas TV stations with in the 26-56 MHz range and then store them into one of the memory channels.

Major features include:

- USB, LSB, FM, AM, and CW modes.
- Full 100 watt output power.
- DDS System.
- CW full/semi break-in capability.
- 26-56 MHz continuous receive.
- Noise blanker
- Adjustable IF notch filter.
- Built-in speech compressor.


**IC-820H**
**\$1999.95**

Suggested List Prices—Call for Quotes

The IC-820H base station dual-band transceiver with 45 watts on VHF and 40 watts on UHF is the perfect rig for satellite work. It is compact and competitively priced without sacrificing features.

Its newly designed DDS features 1 Hz resolution. The IF shift provides for good interference reductions. Satellite communications are enhanced with satellite memory and tracking functions.

Major features include:

- Dual-band transceiver for 2 meters and 440 MHz FM.
- 45 watts output on 2m and up to 40 watts on 440 MHz.
- All mode operation (FM, SSB and CW).
- Newly designed DDS for 1 Hz resolution. The IC-820 has a normal PLL as the main loop and a DDS as the sub-loop. The new I-loop has a single loop and generates a signal with 1 Hz resolution.
- The compact size enables easy installation in a shack as well as a vehicle. Overall dimensions may be small, but important points such as LCD size and space between switches are more than adequate.
- High-stability crystal.
- Optional tone scan.
- 2 VFO's for both VHF and UHF bands.
- IF-shift has been provided for interference reduction. The IF shift circuit shifts the center frequency of the receiver passband electronically to evade interfering signals.
- Satellite communication functions include reverse and normal tracking on the main and sub-band VFOs and include a Doppler compensation function. There are 10 satellite memories for easy selection of desired satellite frequencies.
- Separate main and sub S-meters.
- Packet operation is supported up to 9600 bps. The DATA terminal is connected to its modulator circuit directly so no modification is necessary even at 9600 bps. The modulator circuit is designed to prevent exceeding the maximum deviation even with large amounts of data.
- 50 memory channels can be user allocated to main and sub-bands.
- 2 antenna connectors for VHF and UHF operation.
- RIT function.
- Noise blanker to eliminate pulse-type noise.
- Attenuator to prevent signal distortion.

## Icom VHF Specifications

	Freq Range	Mode	Power Supply	Current Drain Xmit	Current Drain Rec	Power Out	Ant Z	Mike Z	Sens	RIT/XIT	Audio Pwr	Built-in AC Supply
IC-275H	2 m	All	13.8 VDC	20 A	1 A	100 W	50 Ω	600 Ω	<.1 μV	+9.9 kHz	2 W	no
IC-281H	2 m/440 rec	FM	13.8 VDC	10.5 A	800 mA	50 W	50 Ω	600 Ω	<.16 μV		2.4 W	no
IC-481H	440/2m red	FM	13.8 VDC	10 A	800 mA	35 W	50 Ω	600 Ω	<.16 μV		2.4 W	no
IC-475H	• 440 MHz	All	13.8 VDC	20 A	1 A	80 W	50 Ω	600 Ω	<.18 μV	+9.9 kHz	2 W	no
IC-575H	6 m/10 m	All	13.8 VDC	20 A	1 A	100 W	50 Ω	600 Ω	<.25 μV	+9.9 kHz	2 W	no
IC-820H	2m/440 MHz	All	13.8 VDC	16 A	2.0 A	45/35 W	50 Ω	600 Ω	<.11 μV		2 W	no
IC-2000H	2m	All	13.8 VDC	10.5 A	1.0 A	50 W	50 Ω	600 Ω	<.13 μV		2.4 W	no
IC-2340H	2m/440 MHz	FM	13.8 VDC	10.5 A	1.8 A	45/35 W	50 Ω	600 Ω	<.18 μV		2.4 W	no
IC-2700H	2m/440 MHz	FM	13.8 VDC	12A	1.8 A	50/35 W	50 Ω	600 Ω	<.16 μV		2.0 W	no
IC-D100H	2 m/440 MHz/1.2 GHz	FM	13.8 VDC	3.8-12A	1.8 A	50/35/10 W	50 Ω	600 Ω	<.16 μV		> 2.4 W	no

# VHF/UHF MOBILES

## Triple-Band Mobile

### IC-D100H

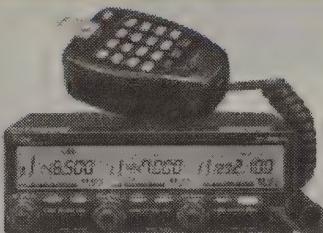
**\$1570.95**

Suggested List Price—Call for Quote

Icom's tri-band, FM mobile transceiver for the 144, 440, and 1200 MHz amateur bands is compact, full of deluxe features, and yet easy-to-operate for driving safety.

The IC-D100H features include:

- Independent 144, 440 and 1200 MHz band units. Independent antenna connectors for the operating bands allows connection of an external duplexer or triplexer.
- Detachable front panel option. An OPC-332 or OPC-333 is required to use the front panel apart from the main body.
- Transmit and receive operations allow each display band to be selected as the operating band allowing simultaneous receive of 3 signals.
- 4 Levels of Digital Squelch.
- Multifunction DTMF Microphone.
- 642 Memory Channels.
- Other features include: independent dials and switches; scan options including full scan, programmed scan, memory scan and priority scan; set mode capability to customize the rig to suit your needs; multiple tuning steps; dual or mono band operation; sub-band access function; sub-band busy beep; front panel lock; optional pager and code squelch function (UT-75 required); optional voice synthesizer (UT-66); 3 external speaker jacks; partial reset; audio mute function; powerful cooling fan; one-touch PTT with time-out timer function.



## Single-Band Mobiles

### IC-2000H

**\$430.95**

Suggested List Price  
Call for Quote



With 50 watts of output, the IC-2000H provides the power to reach even the most distant repeaters. Lower settings of 10 and 5 watts are also available. Die-cast aluminum construction combined with a large heat sink help ensure that operation is stable even at *high duty cycles*. Compact size makes installation a breeze.

Major features include:

- Automatic memory channel advance to enhance the programming process.
- 1 call channel and 60 regular memory channels plus 6 scan edge memory channels. 2 scratch pad memories store the previous duplex or simplex transmit frequencies for instant recall.
- Alphanumeric notes of up to 6 characters may be displayed on memory channels instead of the frequency.
- Optional tone squelch and pocket beep functions allow you to send and receive alphanumeric messages up to 6 characters (UT-85 required).
- 50 watts output; three RF output power settings.
- Optional tone scan when you do not know the tone frequencies (optional UT-85 required).
- Remote control microphone and DTMF Remote Control (optional UT-101 required).

## Dual-Band Mobiles

### IC-2340H

**\$799.95**

Suggested List Price—Call for Quote

This easy-to-operate dual-band FM mobile transceiver is perfect for FM newcomers and experienced amateurs alike. It is designed especially for convenient operation while driving.

Major features include:

- 100 memory channels, 50 for each band storing operating frequency, offset direction, offset frequency, tone squelch (optional UT-89 required) and tone frequency.
- Programmable tone encoder
- Independent tuning knobs and switches for each band.
- 45W output on 2m and 35W on 70 cm.
- Programmable band and memory scanning.
- Full-duplex operation for cross-band operation.



### IC-281H

**\$488.95**

Suggested List Price  
Call for Quote



The IC-281H 2 meter transceiver also has 440 MHz receive capability and the IC-481H 440 MHz transceiver also receives 2 meters. This enables full duplex, crossband operation between the 2 meter and 70 cm with crossband repeat from 440 MHz to 2m. A DATA jack connects a TNC directly to the modulation unit for up to 9600 bps packet.



### IC-2700H

**\$959.95**

Suggested List Price  
Call for Quote

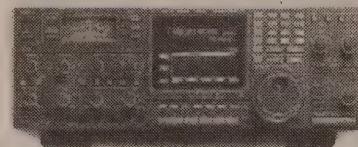
This small, multi-functional 2m / 70 cm FM transceiver is full featured and easy to operate. The front panel is detachable for installation flexibility.

Major features include a 3-channel log memory and repeater memory, separate controls for each band, full remote control microphone and optional infrared wireless microphone. It features multiple scanning functions with 100 memories. 20 to 80 memories can be allocated in steps of 10 to the bands with a maximum of 100 total allocated. Four levels of digital squelch are available. Output power on 2m is 50 watts and 35 watts on 70 cm.

Mid-Atlantic 1-800-444-4799 • Northeast 1-800-644-4476 • New England 1-800-444-0047

Features include:

- Built-in pager and code squelch functions.
- 50 watts output; three RF output power settings.
- 50 regular memory channels store frequency, offset, tone, duplex shift direction. 10 scratch pad memories store 10 previous transmit frequencies for instant recall.
- Automatic memory channel advance to enhance the programming process.
- Optional tone scan when you do not know the tone frequencies (optional UT-85 required).
- Multiple scan functions: programmed, priority watch, memory skip.
- Optional voice synthesizer (optional UT-66 required).
- Auto power off function.

**ICOM****IC-R9000****\$6825.00**

Suggested List Price—Call for Quotes

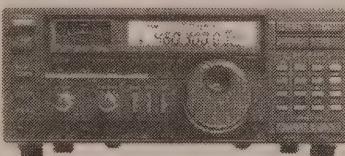
**Notice: Federal and State Government Agencies and Communications Customers Only**

Icom's top of the line receives 100 kHz to 1999.8 MHz. Eleven separate bandpass filters use GaAs Fets for VHF and UHF bands. All modes include LSB, USB, CW, AM, FM, WFM (wide-FM), FSK.

The receiver has Icom's unique, state-of-the-art multifunctional CRT display with spectrum scope. The display provides information on the status of the radio as well as the incoming signals.

The CRT display shows memory contents, dual clocks, weekly and daily timers, and frequency information of the dual VFO's. The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately .63µV.

1000-channel memory stores mode, frequency, and tuning increments. Multiple scanning functions: program scan, memory scan, selected memory scan, selected memory mode scan, priority scan, and voice scan control. Direct keyboard entry; Notch filter and IF shift.

**IC-R7100****\$1850.00**

Suggested List Price—Call for Quote

This VHF / UHF receiver provides continuous coverage from 25 to 2000 MHz. 800 MHz blocked except for Government approved agencies and communications customers only.

Major features include: all mode capability (SSB, AM, FM and WFM); dial and keyboard entry tuning; 900 numbered memory channels; multiple scanning capabilities; new window scan; built-in clock and timer operations; optional TV receive capability.

**RECEIVERS****IC-R71A****\$1440.00**

Suggested List Price—Call for Quotes

This versatile, multifunction receiver was built for superior performance. It has an RF preamp, 100 dB dynamic range, selectable AGC, and tuning control or keyboard frequency selection.

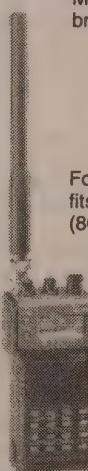
Other features include:

- USB, LSB, AM, FM, RTTY and optional FM modes.
- Covers 100 kHz to 30 MHz.
- 32 memory channels.
- Programmed, memory and mode scan functions.
- Dual VFO's with three tuning rates and keyboard frequency entry.
- Adjustable IF notch filter & noise blanker.
- Built-in preamplifier and attenuator.
- Optional accessories: Remote control RC-11; Voice synthesizer EX-310.

**IC-R100****\$850.00**

Suggested List Price—Call for Quotes

This is a great full-coverage receiver for mobile use. With FM, FM wideband and AM modes and frequency coverage of 100 kHz to 1.8 GHz (800 MHz Blocked), the IC-R100 tunes in all frequencies of interest. It has scanning, memory and priority features to locate stations quickly. 100 memory channels store mode, RF attenuator and preamplifier setting. Other features include a 24 hour clock, 15dB preamplifier for 50-905 MHz, 20 dB RF attenuator, multiple tuning steps, all-mode squelch, AFC for frequencies above 50 MHz, automatic noise limiter, mobile mounting bracket, wire and telescoping antennas.

**IC-R1****\$577.95**

Suggested List Price—Call for Quotes

For people on the go, this compact receiver fits in a pocket. It covers 50 kHz to 905 MHz (800 MHz blocked) and receives AM, FM and

FM wideband signals. To help find your favorite stations, there are 100 memories and a number of scanning features. Scan a frequency range or memories. With the memory skip function, only channels of interest will be searched. With the built-in timer, the IC-R1 will turn on or off at a specified times. The IC-R1 uses most of the same accessories as the IC-2S series handhelds.

**2 Meter Handhelds****IC-T22****2m Handheld**

**NEW!**  
IC-T22 This device has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been obtained.

Icom now provides a mono band 2m handheld with quality and prestige a price that have not been available before. Its small, slim design fits well into the hand.



Features include:

- Powerful and easy to use.
- Superior receive audio.
- Wide-band reception.
- 40 memory channels.
- New "log-in" feature memorizes frequencies transmitted automatically.
- Runs directly from 12V for full 5W output.
- Battery pack compatible with the IC-Z1A and IC-W31A.

**IC-2GXAT**

Whether you are a beginner or seasoned veteran, you will like the surprisingly simple operation of this high power 2-meter handheld.



Features include:

- Full 7 W of output with the BP-132A battery or 13.5 VDC.
- 40 repeater oriented memory channels and 1 call channel.
- Automatic repeater function.
- Channel number indication.
- Tone scan function.
- DTMF redial and five DTMF auto dial memories.
- Automatic power saver.
- Programmed or memory scan with skip function.
- Squelch monitor function.
- Subaudible tone encoder, tone squelch and pocket beep. Optional pager and code squelch (UT-49 required).
- Lighted display with 5 second timer.

## Dual-Band Handhelds

**IC-Z1A**

2m / 70 cm

**NEW!**

Icom's superior technology and design have once again produced a first in the amateur radio world. This dual band handheld (2m/70cm) has a control panel that detaches from the body of the radio.

Better than a speaker-mike, it has a fully functional display of all operating conditions (including band and frequencies) and complete control of volume, modes, tuning, scan, band selection, ON/OFF and PTT.

This standard feature comes with an alligator clip and it's also backlit for nighttime operation. Clip the main body to your belt or put it in your pocket or purse. For mobile operation, it can be easily positioned so it won't interfere with driving.

The alphanumeric display shows up to 6 characters for quick and easy memory channel identification. An EPROM is used to prevent loss of memory information when your batteries go dead.

## Other features include:

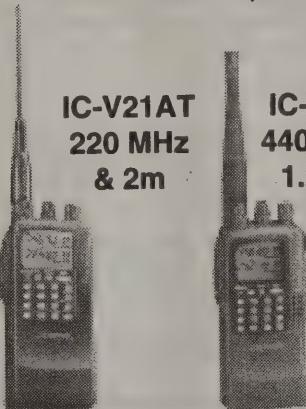
- Alphanumeric message and paging to transmit and receive up to six characters (using DTMF tones) as a simple message pager.
- A total of 104 memories (46 regular and 6 scan edge per band) may be displayed by frequency, channel number and alpha name.
- Easy-to-use backlit keypad.
- Long operating times between charges. Multiple power saver functions. A battery voltage readout helps plan ahead.
- V/V, U/U or V/U main/sub band operation.
- Simultaneous receive on both bands.
- Accepts 4.5 to 16 VDC external power.
- Full crossband duplex operation.
- CTCSS encode standard (optional decode UT-93 required).
- Auto repeater offset/shift function.

**IC-W21AT**

2m &amp; 440 MHz

Icom offers a radically new operating style to make handheld communications even more convenient. With just a few switches and an independent volume and squelch for each band, the 21AT series is extremely simple to operate. Icom calls this new operation style the "whisperfunction." Enjoy telephone-style communication through a microphone equipped battery pack that enables full-duplex cross-band operation.

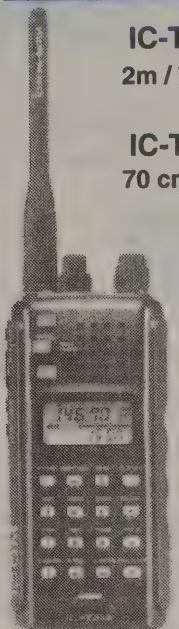
When you access a repeater, all settings are automatically memorized into a special independent repeater channel. Recalling the last-used repeater information is quick and simple.

**IC-V21AT**  
220 MHz  
& 2m**IC-X21AT**  
440 MHz &  
1.2 GHz

## Features for all three models include:

- Receive 2 signals on the same band plus full crossband operation.
- Battery capacity indicator.
- Remote control from an optional HM-75 speaker-microphone.
- 70 channels. 32 memories and 1 call channel that store repeater information plus 2 scan edge channels for each band.
- Built-in pocket beep, pager code squelch and tone squelch.
- 4 DTMF memory channels.
- 5 output power levels.
- Separate speaker control for directing one or both bands to an external speaker.
- Key for quick access to often-used functions.
- Only the IC-W21AT has expanded receive 138 - 174 MHz.

## Dual-Band Receive

**IC-T21A**

2m / 70 cm

**IC-T41A**  
70 cm / 2m

The IC-T21A is a transceiver on 2 meters and a receiver on 440 MHz. The IC-T41A is a transceiver on 440 MHz and a 2 meter receiver. You have full cross band operation between 2 m and 70 cm.

## Features include:

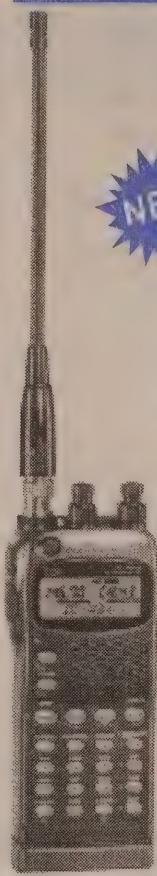
- 2 band receiving capability plus full duplex cross-band operation.
- High speed scan functions (33 channels per second).
- 100 memory channels with repeater memory.
- 5 DTMF memory channels.
- 5 output power levels and 8 tuning steps. 6 Watts with 13.5 VDC.
- 24 hour system clock.
- Dial select for quick frequency change.
- Tone scan capability to access repeaters with an unknown tone frequency.
- Built-in pager, code squelch, pocket beep and tone squelch.
- Power on/off timers and auto power off function.
- Optional speaker microphone with remote control capability.

## Dual Band

**IC-W31A**  
2m / 70 cm

**NEW!**

**IC-W31A** This device has not been approved by the Federal Communications Commission. This device is not and may not be offered for sale, lease or sold or leased until the approvals of the FCC have been received.



Icom introduces an ultra compact 2m/70cm handheld transceiver. It is slim yet has a large display. It combines simple operation with dependable, rugged construction.

### Features include:

- 5 watts maximum output with 3 selectable power levels.
- Channel indicate function displaying memory channels only.
- Wide operating voltage from 4.5 to 18 VDC.
- Electric volume switch for controlling audio level from an optional speaker mike.
- 40 memory channels.
- LCD backlit display with 5 second timer function.
- 10 DTMF memory channels.
- Automatic repeater selection.
- Multiple scanning functions.

## Triband



## IC-D1A

The world's first and only triband FM handheld transceiver operates on 2 meters, 70 cm and 1.2 GHz bands, and delivers performance comparable to three base units in one case.

All three bands are factory included, not optional. All three receive simultaneously. Transmit on one while receiving on either or both of the others.

Special features include separate controls and functions for each band, 78 memories (26 per band), 4 DTMF autodialing memories, all PL

tones and a 24 hour clock with on/off timers. This moves amateur radio's FM handhelds into the 21st century!

### Features include:

- Three handhelds in one. Covers 144-148 MHz, 440-450 MHz and 1240-1300 MHz.
- Receives 138-174 MHz covering the NOAA weather and public service frequencies.
- Simultaneous three band reception monitors all VHF and UHF channels and repeaters at once. Switch to a dual or single band as desired.
- 2 watts output on 2m and 70cm; 5 watts with the optional BP-103. Output on 1.2 GHz is 1 watt.
- 78 memories: 26 per band. All memories store any related band frequency, TX offset, PL tone and digital squelch settings.

## Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit	Current Transmit	Drain Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	Sugg. List
IC-D1A	TriBand (see text)	13 VDC	2/2/1 W	1.9 A	210 mA	<.16µV/12dB	5.7(14.4)	2.3(5.8)	1.9(4.8)	20(635)	\$987.95
IC-2GXAT	144-148 MHz†	13.5VDC	3.0/1.0 W	1.8 A	250 mA	<.18µV/12dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	13(365)	\$359.95
IC-T21A	2m/440	13.5 VDC	60/.15 W	1.8 A	160 mA	<.16µV/12 dB	4.4(11.1)	2.1(5.4)	1.4(3.5)	11.1(315)	\$455.95
IC-T22	2m										TBA
IC-T41A	440/2m/440	13.5 VDC	60/.15 W	1.8 A	160 mA	<.16µV/12 dB	4.4(11.1)	2.1(5.4)	1.4(3.5)	11.1(315)	\$472.95
IC-V21	2m/222 MHz	7.2 VDC	1.5 W	1.5 A	200 mA	<.16µV/12 dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	14(390)	\$783.95
IC-W21AT	2m/440†	13.5VDC	2.0/.5 W	1.4 A	150 mA	<.16µV/12dB	4.8(12.5)	2.3(5.7)	1.4(3.5)	13(350)	\$629.95
IC-W31AT	2m/440†	13.5VDC	5.0/.5 W	2.5 A	250 mA	<.18µV/12dB	4.3(11.0)	2.2(5.7)	1.1(2.7)	13(345)	TBA
IC-X21AT	440/1200 MHz	13.8VDC	5.0/1.0 W	1.6/0.9 A	180 mA	<.16µV/12dB	4.9(12.5)	2.2(5.7)	1.4(3.5)	13(400)	\$796.95
IC-Z1A	2m/440†	13.5VDC	5/5 W	1.5 A	210 mA	<.16µV/12dB	4.9(12.5)	2.2(5.7)	1.4(3.6)	13.4(380)	\$600.95
IC-12GAT	1.2 GHz	13.8VDC	1 W	.9 A	250 mA	<.25µV/12dB	5.1(13)	2.6(6.5)	1.4(3.5)	18(500)	\$505.95

## Handheld Batteries / Chargers

Model	Volts	Rating mAh	Wall Charger	Desk Charger	HRO Battery Prices
BP3	8.4	270	BC-25u	BC-35	\$44.95
BP-7	13.2	450	BC-16u	BC-35	\$88.95
BP-8	8.4	800	BC-16u	BC-35	\$85.95
BP-70	13.2	270	BC-16u	BC-35	\$75.95
BP-81	7.2	110	BC-74A	BC-72	\$59.95
BP-82	7.2	300	BC-74A	BC-72	\$59.95
BP-83	7.2	600	BC-74A	BC-72	\$59.95
BP-84	7.2	1000	BC-74A	BC-72	\$87.95
BP-85	12	340	BC-74A	BC-72	\$107.95
BP-101	7.2	700		BC-79*	\$69.95
BP-102	7.2	1200		BC-79*	\$94.95
BP-103	12	600		BC-79*	\$110.95
BP-111	7.2	400	BC-74A	BC-80	\$62.95
BP-112	7.2	700	BC-74A	BC-80	\$68.95
BP-113	7.2	1200	BC-74A	BC-80	\$92.95
BP-114	12	400	BC-74A	BC-80	\$112.95
BP-121	7.2	400	BC-77A	BC-79*	\$62.95
BP-122	7.2	700	BC-77A	BC-79*	\$68.95
BP-123	7.2	1200	BC-77A	BC-79*	\$92.95
BP-124	12	400	BC-77A	BC-79*	\$116.95
BP-131	7.2	900		BC-79*	\$84.95
BP-132	12	600		BC-79*	\$99.95
BP-132A	12	600	BC-77A	BC-79*	\$99.95
BP-157	7.2	900	BC-77A	BC-79*	\$62.95
BP-160	7.2	700	BC-77A	BC-79*	\$48.95
BP-171	4.8	700	BC-74A	BC-79*	\$60.95
BP-172	4.8	650	BC-74A	BC-79*	\$66.95
BP-173	9.6	600	BC-74A	BC-79*	\$109.95

\*Adapters are required. See Adapter Table.

## BC-79 Adapters

Adapter	For Batteries	HRO Price
AD-22	BP-101, BP-102, BP-103	\$45.95
AD-25	BP-131A, BP-132A, BP-157A	\$45.95
AD-26	BP-121, BP-122, BP-123, BP-124	\$13.95
AD-27	BP-100, BP-130	\$13.95
AD-28	BP-131, BP-132	\$13.95
AD-51	BP-171, BP-172, BP-173	\$14.95

## Call for Icom Discounts

\* Power with standard battery pack † Frequency coverage 138-174(receive only outside amateur bands), 440-450 MHz †† Frequency coverage 136-174 MHz and 400-470 MHz (receive only outside amateur bands)

## Icom Handheld Accessories

OPTIONS	2 METERS										DUAL and TRB BAND										440 MHZ				1200 MHZ			220 MHZ			HRO Price
	2SAT	2GAT	2GXAT	2SRA	T21AT	T22	2IA	02AT	P2AT	2AT	24AT	D1A	V21AT	W2A	W21AT	W31A	X21AT	X2A	Z1A	4SAT	4GAT	4SRA	4IA	04AT	P4AT	12GAT	3SAT	03AT	P3AT		
BP-3	*						*													*										\$44.95	
BP-7	*											std									*									\$88.95	
BP-8	*							*												*										\$85.95	
BP-70	std							*												std										\$75.95	
BP-81	*										*		*				*			*										\$55.95	
BP-82	*		*								std		*				*			*										\$59.95	
BP-83	*		*								*		*				*			*										\$59.95	
BP-84	*			std							*		std				std			std										\$87.95	
BP-85	*		*								*		!				*			*										\$107.95	
BATTERY PACKS	BP-101										*		*																		\$69.95
	BP-102										*		*																		\$94.95
	BP-103										*		*																		\$110.95
	BP-111										std																			std \$62.95	
	BP-112										*																				\$68.95
	BP-113										*																				\$92.95
	BP-114										*																				\$112.95
	BP-121										std																				\$62.95
	BP-122										*																				\$68.95
	BP-123										*																				\$92.95
	BP-124										*																				\$116.95
	BP-131																			*											\$84.95
	BP-131A											*																			\$84.95
	BP-132											*																			\$99.95
	BP-132A	*										*																			\$99.95
	BP-157																			*											\$62.95
	BP-157A												*																		\$62.95
	BP-159		*																												\$25.95
	BP-160	*																													\$48.95
	BP-171										*									*											\$60.95
	BP-172										*									*											\$60.95
	BP-173		*								*									*											\$48.95
BATTERY CASES	BP-4	*									*		*							*		*									\$25.95
	BP-90	*	*								*		*							*		*									\$25.95
	BP-100											*																			\$25.95
	BP-110											*																			\$19.95
	BP-120										*																				\$25.95
	BP-130										*																				\$25.95
	BP-130A	*									*																				\$25.95
	BP-170										*									*											\$25.95
	CM-12	*									*									*		*									\$29.95
CABLES	CP-1	1									1	2								1	1	1	1	1						\$21.95	
	CP-11	3									*	2								3		*	3	3							\$26.95
	CP-12	*									*	*								*		*									\$29.95
	CP-13	*	*								*		*							*		*									\$29.95
	CP-13L	*	*								*		*							*		*									\$29.95
	OPC-254	*									*	*								*		*									\$9.95
	OPC-288	*	*	*							*	*								*		*									\$13.95
DC-CONV	DC-1																														\$29.95
SPEAKER	HM-46	*									*	*	*							*		*									\$50.95
	HM-46L	*									*									*		*									\$50.95
MICS	HM-54	*									*	*	*							*		*									\$60.95
	HM-55	*																													\$115.95
	HM-65																			*		*									\$55.95
	HM-70																			*		*									\$60.95
	HM-75																			*		*									\$70.95
HEADSET	HS-60																			*		*									\$71.95
	HS-51	*	*	*							*	*	*	4		*				*		*									\$70.95
	HS-85																			*		*									CALL
MOUNTING BRACKETS	MB-24	*																													\$29.95
	MB-25	*																													\$35.95
	MB-30	*	*	*							*	*	*	*		*	*		*	*		*									\$19.95
INTERNAL OPTIONS	UT-40	*																													\$60.95
	UT-49	*	*																												\$149.95
	UT-50	std																													\$154.95
	UT-63																			*		*									\$90.95
	UT-70																			std											\$145.95
	UT-71																			*											\$70.95
	UT-72																														\$55.95
	UT-86																			*											\$50.95
	UT-93																			*											\$70.95
	UT-94																			*											CALL
OTHER OPTIONS	AD-12	*																		*		*									\$129.95
	AD-20																			*		*									\$129.95
	BA-10																			*		*									\$9.95
	BA-11	*		*																*		*									\$8.95
	BA-12	*																		*											\$21.95

1 For charging BP-3, BP-5A, BP-7, BP-8, BP-70 2 Optional DC-1 is required 3 Optional AD-12 is required 4 Except for full duplex operation

# KENWOOD

## HF and 6M Mobile



### TS-50S

\$1294.95

### TS-60S

\$1209.95

Suggested List Prices  
Call for Quotes

Kenwood's compact TS-50S is for HF and the TS-60S is for 6 meters only. They feature all-mode operation (AM, CW, SSB and FM) with 100W (90W TS-60S) on CW/SSB/FM and 25 watts on AM. The general coverage receiver on the TS-50S covers 500kHz to 30MHz.

They have RIT, IF Shift, noise blanker and scanning functions. It features 2 VFO's and 100 memories. The compact size and weight makes it the perfect mobile or traveling rig.

#### Features include:

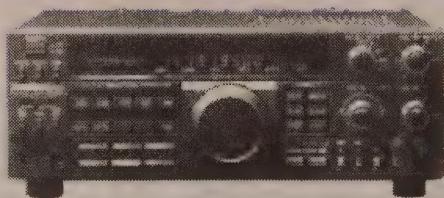
- TS-50S has a 500 kHz - 30 MHz general coverage receiver (not available on TS-60S).
- DDS with "Fuzzy" Control Logic.
- Speech processor.
- Weighs only 6.4 pounds.
- Full break-in / semi break-in.
- Convenient menu programming.
- All mode squelch and CTCSS encode built-in (TS-60S).
- Automatic gain control (slow/fast).
- IF shift and TF-set.
- Computer control (optional).

## Receiver

### R-5000

\$1179.95

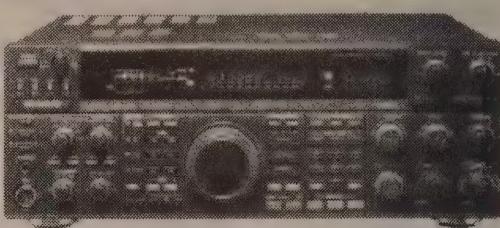
Suggested List Price  
Call for Quote



This competition class communications receiver has every conceivable feature required by the serious shortwave listener. It is designed to receive all modes (LSB, USB, AM, CW, FM) from 100 kHz to 30 MHz. With the optional VC-20 converter unit coverage is extended to include 108 - 174 MHz. (VC-20 installed by dealer.)

#### Major features include:

- 102 dB dynamic range.
- 10 Hz step dual VFO's for SSB, FSK and CW. 100 Hz for AM and FM. VFO's operate independently.
- Dual high and low impedance antenna terminals.
- 100 memories store frequency, mode and antenna selection.
- Keyboard frequency selection for direct entry.
- Memory and programmable band scan.
- Dual 24 hour clocks with timer.
- Built-in AC power supply. 110 VAC only; UL approved.
- 12 VDC operation with the optional DCK-2.



### TS-950SDX

\$4799.95

Suggested List Price—Call for Quote

The TS-950SDX is Kenwood's top-of-the line HF transceiver. The state-of-the-art design includes Digital Signal Processing (DSP), high power MOSFET-type finals, simultaneous dual-receive and much more.

The major features include:

- 100 kHz - 30 MHz general coverage, quadruple conversion receiver with 100 memories.
- 160 - 10 meter amateur operation (MARS modifiable).
- High power output utilizing rugged MRF150MP finals.
- Built-in automatic antenna tuner 160 - 10 meter, dual digital VFO's, illuminated keyboard, memory channel / VFO control, and RIT / XIT.
- Multiple scan functions and direct band key access.
- Built-in AF digital filter, multi-drive bandpass filter
- Built-in dual noise blankers, IF filters, selectable IF filter in memory, 4-position RF attenuator, & auto-AGC.
- CW features include full and semi break-in electronic memory keyer, variable pitch control and selectable CW filters.
- Easy split -frequency operation.
- "Menu-Driven" control of various functions.
- Includes RM-1 remote keyboard.
- Separate S-Meter and speaker output for the sub-receiver.
- Front panel control of DSP.
- Fine tune in 1Hz steps.
- Optional DRU-2 Voice Memory device available for SSB contest use.
- 500Hz CW filter in sub-receiver.

# HF TRANSCEIVERS / RECEIVER



**TS-850S**

\$1949.95

Suggested List Prices—Call for Quote

**TS-850S / AT**

\$2149.95

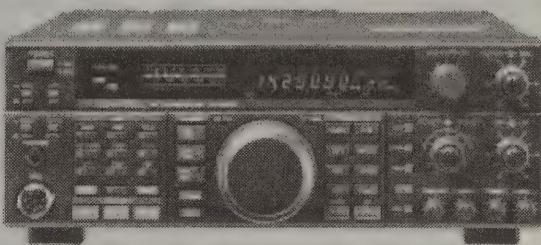
**TS-450S**

\$1439.95

**TS-690S**

\$1759.95

Suggested List Prices  
Call for Quote



This HF transceiver is a 12 volt high performance transceiver with a general coverage receiver of the TS-950SDX calibre. It is available with or without the internal automatic antenna tuner.

Major features include:

- 160-10 meter amateur operation (MARS modifiable).
- General coverage receiver 150 kHz - 30 MHz.
- SSB IF slope tuning with independent High & Low Cut control.
- IF notch filter. Audio Filter.
- Optional external AC power supply PS-52.
- Full and semi break-in CW. Fine tuning on CW.
- Speech processor, RIT / XIT, keyer.
- 10 HZ dial resolution.
- 100 memory channels store receive and transmit frequencies.
- Keyboard frequency entry.
- Dual mode noise blower; RF attenuator; switchable AGC.
- Optional DSP-100 Digital Signal Processor converts audio signals to digital information for cleaner SSB and CW signals.

These compact models give you competition class reception and 100W transmission capabilities across all nine HF bands. The TS-450SAT incorporates an automatic antenna tuner for easy antenna coupling. The TS-690S has the same features as the TS-450S plus the 50 MHz band.

The major features include:

- 500 kHz-30 MHz general coverage receiver on TS-450S plus 50-54 MHz on TS-690S (MARS modifiable).
- 160 - 10 meter amateur operation on TS-450S; plus 6 meters on TS-690S.
- All modes USB, LSB, CW, AM, FM and AFSK.
- Advanced Intercept Point (AIP) for improved dynamic range.
- Speech processor.
- Dual VFO's; RIT / XIT; IF Shift and selectable IF filter.
- Full break-in for CW with CW reverse.
- Tunable AF notch filter, dual-mode noise blankers and RF attenuator.
- Multiple filter options selectable from the keypad.
- 10 Hz dial resolution.
- 100 memory channels.
- Multiple scanning functions.
- Switchable AGC (slow or fast).
- Optional internal automatic antenna tuner for 80 - 10 meter operation.
- 100% duty cycle transmitter.

**TS-140S**

\$1079.95

Suggested List Price - Call for Quote

With its price and features, the TS-140S is the perfect back-up radio or first novice rig. It provides SSB, CW, AM and FM operation on all HF amateur bands. This compact and affordable radio can be used for mobile as well as base operation.

Features include: 500 kHz - 30 MHz general coverage receiver; independent dual VFO's.; Multiple scanning capabilities; 10 of the memories store transmit and receive frequencies independently. Allows for repeater operation; Speech processor; CW full break-in.

## Kenwood HF Specifications

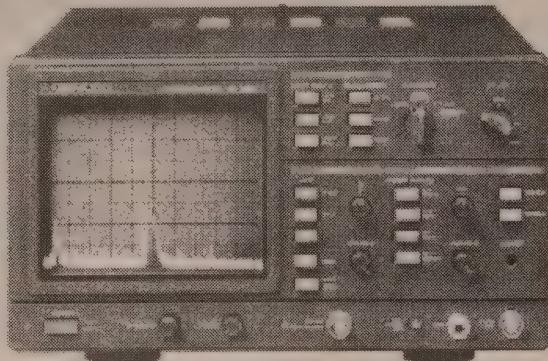
Model	Receiver Frequency Range	Power Supply		Current Drain		Power					FSK Shift	Mike Z	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
		50/60 Hz AC	DC	Xmit	Rec	AM	FM	SSB	CW	FSK							
TS-950S	100 kHz - 30 MHz	120/220/240 V		700 W max	80 W	40	150	150	150	150	170 Hz	500 Ω-50 kΩ	Quadrupole Conversion	<2μV SSB,CW,FSK	±9.99 kHz	>45 dB	1.5 W
TS-850S	100 kHz - 30 MHz	13.8 V	20.5 A	2 A	40	100	100	100	100	100	170 Hz	500 Ω-50 kΩ	Triple Conversion	<2 μV SSB, CW, FSK	±9.99 kHz		1.5 W
TS-450S	500 kHz - 30 MHz	13.8 V	20.5 A	2.1 A	40	100	100	100	100	100		500 Ω-50 kΩ	Triple Conversion	< 25 μV	±1.1 kHz	20 dB	1.5 W
TS-140S	500 kHz - 30 MHz	13.8 V	20 A	1.5 A	40	50	100	100	-	500 Ω-50 kΩ	Double Conversion	< 25 μV at 10 dB	±1.2 kHz		-	1.5 W	
TS-690S	500 kHz - 30 MHz & 6m	13.8 V	20.5 A	2.1 A	40†	100#	100#	100#	-	500 Ω-50 kΩ	Triple Conversion	< 25 μV at 10 dB**	±1.1 kHz	20 dB	1.5 W		
TS-50S	500 kHz - 30 MHz	13.8 V	20.5 A	1.5 A	25	100	100	100		600 Ω		&	< 25 μV	±1.1 kHz	2 W		
TS-60S	50 - 54 MHz	13.8 V	20.5 A	2.0 A	25	90	90	90		600 Ω		&	< 25 μV			2 W	

\* Input Power \*\* 6m <16μV at 10 dB †20W Out at 6m # 50 W Out at 6m @ Double Conversion SSB, CW, AM; Triple FM

# KENWOOD

## Station Monitor

The station monitor in Kenwood's accessory line monitors both transmit and receive signals on the TS-950S and TS-850. The SM-230 can be used to monitor only your transmitted signal or other Kenwood and other manufacturer's HF rigs.

**SM-230****\$1169.95**

Suggested List Price—Call for Quote

The SM-230 station monitor is a peripheral to the TS-950 HF transceiver. Using a 6 inch square CRT, it is a multi-function monitor scope with oscilloscope, band scope, monitor scope, RTTY cross pattern observation, and tone generator. Its frequency range is 1.8 - 150 MHz.

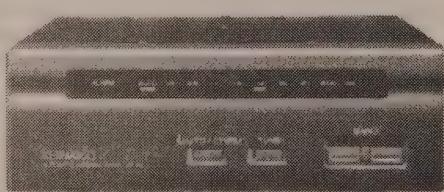
Other features include:

- Dual Watch marker function.
- 6 step attenuator.
- Maximum input power 2 kW PEP to 80 MHz and 100 W PEP to 150 MHz.
- 3 bandwidths: 50 kHz, 200 kHz and 500 kHz.
- Built-in interface for the TS-950, for dual VFO marker.

## Antenna Tuners

### AT-450

The AT-450 is an automatic antenna tuner that can be provided as an option for the TS-450S and TS-690S. The installation can be easily accomplished with only a screwdriver. The tuner only works with the TS-450S and TS-690S and covers 80 - 10 meters. Suggested List Price \$249.95

**AT-50**

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. It is useful for both mobile and fixed operation. Accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. Suggested List \$369.95

### AT-300

The AT-300 is a specialized antenna tuner that can be used with the TS-450S for mobile or marine operation. It will automatically tune a whip or random length of wire. Suggested List Price \$689.95

## Power Supplies

### PS-31

The PS-31 power supply is designed especially for the TS-790A satellite transceiver. The supply is for 110 VAC only and provides 13.8 VDC output. The rating is 20 A at a 25% duty cycle and 15 A at a 50% duty cycle. The supply may also be used for operation of HF radios. The power connector matches most all the other Kenwood HF radios. Suggested List Price \$219.95

### PS-52

The PS-52 power supply has been designed specifically to power the TS-850. The PS-52 is a heavy duty supply that will operate all modes of the TS-850 for the rated periods of time. The supply provides 13.8 VDC at 22.5 A. The PS-52 features a cooling fan and protection circuits. Suggested List Price \$289.95

### PS-53

The PS-53 power supply has been designed specifically to power the TS-450S and TS-690S. The PS-53 is a heavy duty supply that will operate all modes for the rated periods of time. The supply provides 13.8 VDC at 20.5 A. The PS-53 features a cooling fan and protection circuits. Suggested List Price \$269.95

## HF Linear Amplifier

**TL-922A****\$2099.95**

Suggested List Price—Call for Quote

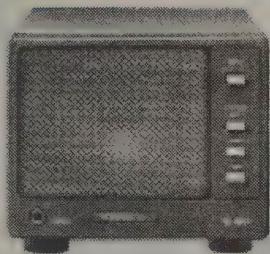
The TL-922A is an HF linear amplifier designed to provide near maximum legal power on the amateur bands. It utilizes two 3-500Z high-performance tubes. The TL-922A may be modified by the amateur for 10 meter operation. Please provide a copy of your amateur license when requesting the modification instructions.

Major features include:

- Variable threshold ALC circuit.
- Drive required is 80 watts or more.
- Power requirements 120/220 VAC, 50 / 60 cycle.
- ALC negative-going adjustable threshold with -8 VDC maximum.
- Shipped by truck, air freight, RPS and UPS to some areas.
- Class AB<sub>2</sub> grounded-grid circuit.
- Cooling fan power-off delay circuit and safety protection provisions on the cabinet.
- Dual meters for proper amplifier adjustment.
- Covers 160 - 15 meters. 10 meters with user modification.

# ACCESSORIES / MARINE RADIO

## Speakers



**SP-950**

Kenwood has a number of external speakers for HF and VHF / UHF mobile and base stations. The top of the line speakers have built-in audio filters.

The **SP-950** is the base station speaker with cabinet styling that matches the TS-950S and TS-950SDX. The speaker has the ability to select two radio inputs and has high and low filter switches. The high filter switch attenuates frequencies above 3.0 kHz and 1.3 kHz respectively. The low switch

attenuates frequencies below 400 Hz. The speaker has a separate headphone jack on the front panel and a line output for packet, RTTY or SSTV. Suggested List Price \$134.95

Kenwood has added another speaker to especially match the TS-450S and TS-690S. It is the **SP-23** speaker. Sugg. List Price \$87.95

The **SP-31** is designed for the TS-850. It can select one of two audio inputs, high and low filters and a separate headphone jack. HRO Price \$94.95

There are two mobile speakers, the **SP-41 (\$48.95)** and the **SP-50B (\$52.95)**. The **SP-41** is a small square speaker and the **SP-50B** is a thin rectangular speaker. Both are provided with an assortment of mounting accessories for mobile use.

## Kenwood HF Accessories

Option	Model	950 SDX	940S	930S	850S	450S 690S	440S	430S	140S 680S	50S	60S	Sugg. List
<b>Microphone</b>												
Hand	MC-43S	std	std	std	std	std	std	std	std	*	*	\$58.95
Hand	MC-47									std	std	\$54.95
Desk	MC-60A	*	*	*	*	*	*	*	*	*	*	\$151.95
Desk	MC-80	*	*	*	*	*	*	*	*	*	*	\$107.95
Desk	MC-85	*	*	*	*	*	*	*	*	*	*	\$164.95
Desk	MC-90	*										\$254.95
<b>Filters</b>												
250Hz CW	YG-455CN-1	*	*	*	*	*						\$179.95
500Hz CW	YG-455C											\$119.95
500Hz CW	YG-455C-1	std	*	*	*	*			*			\$164.95
500Hz CW	YK-455C-1					*			*			\$114.95
6kHz AM	YK-88A							*				\$80.95
6kHz AM	YK-88A-1	*	*									\$104.95
500Hz CW	YK-88C						*	*				\$104.95
500Hz CW	YK-88C-1	std	*	*	*	*						\$114.95
270Hz CW	YK-88CN						*	*				\$104.95
270Hz CW	YK-88CN-1	*			*	*						\$99.95
1.8kHz SSB	YK-88SN	*					*	*				\$104.95
2.4kHz SSB	YK-88S-1						*					\$104.95
1.8kHz SSB	YK-88SN-1	*			*							\$99.95
2.4kHz SSB	YK-88S						*					\$92.95
500Hz CW	YK-107C								*	*		\$114.95
<b>High Stability Oscillator</b>	SO-1	*										CALL
	SO-2	std			*	*				*	*	\$184.95
<b>Headphones</b>	HS-5	*	*	*	*	*	*	*	*			\$74.95
	HS-6	*	*	*	*	*	*	*	*			\$54.95
<b>External Speaker</b>	SP-41						*	*	*			\$44.95
	SP-31				*							\$94.95
	SP-50B					*	*	*	*	*	*	\$47.95
	SP-23					*						\$79.95
	SP-950	*										\$124.95
<b>HF Linear Amplifier</b>	TL-922A	*	*	*	*	*	*	*	*			\$2,099.95
<b>Phone Patch</b>	PC-1A	*	*	*	*	*	*	*	*			\$134.95
<b>Voice Synthesizer</b>	VS-1	*					*					\$65.95
	VS-2	*			*							\$67.95
<b>Station Monitor</b>	SM-230	*	*	*	*	*	*	*	*	*		\$1,099.95
<b>Antenna Tuner</b>	AT-50											\$369.95
	AT-300				*	*						\$689.95
	AT-450					*						\$249.95
	AT-850				*							\$249.95
<b>Mobile Mount</b>	MB-13								*	*		\$52.95
	MB-430				*	*	*	*	*			\$47.95
<b>Power Supply</b>	PS-33				*	*	*	*	*	*		\$239.95
	PS-52				*							\$289.95
	PS-53				*				*	*		\$269.95
<b>Digital Signal Processor</b>	DSP-100				*	*						\$669.95
<b>Voice Memory</b>	DRU-2	*			*							\$134.95

## Marine Radio



**TKM-707**

**\$1,995.95**

Suggested List Price—Call for Quote

The **TKM-707** is a high performance SSB radiotelephone designed to meet the stringent demands of the marine market in quality and ruggedness. The **TKM-707** utilizes a heavy duty rustproof aluminum chassis and the highest quality parts to maximize performance. The transceiver now meets the 27.5 MHz USCG requirements.

Major features include:

- 150 watt RF output.
- Multi-scanning features.
- Covers all marine bands from 2 MHz to 27.5 MHz.
- General coverage receiver from 500 kHz to 30 MHz.
- 198 memory channels including 195 preprogrammed ITU channels.
- 2128 kHz Emergency Alarm built-in.
- Dual mode noise blower.
- All mode operation including SSB and AM.
- Large, multi-function LCD display.
- Automatic antenna tuner control function.
- Built-in clarifier.
- Rustproof aluminum chassis and stainless steel screws.

**MAT-100**

**Automatic Antenna Tuner**  
for the **TKM-707**

**\$995.95**

Suggested List Price—Call for Quote

Ham Radio Outlet  
Accepts



# KENWOOD

## Multi-Band FM Mobiles



**TM-642A**

\$939.95

**TM-742A**

\$939.95

**TM-942A**

\$1279.95

Suggested List Prices  
Call for Quotes

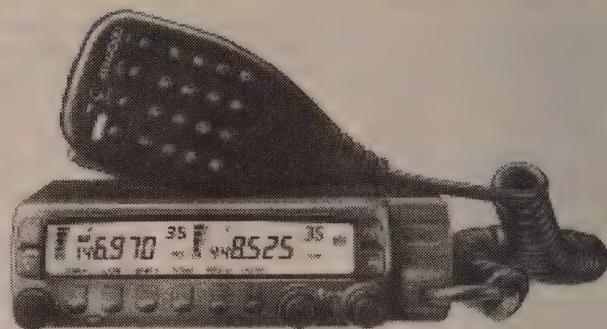
This multi-band FM transceiver family has a radio to satisfy the most demanding multi band needs of the mobile radio amateur. The design provides dual band (144 / 440 MHz or 144 / 220 MHz) operation with the capacity to expand to triple band operation by adding optional 28 MHz, 50 MHz, 220 MHz, or 1200 MHz modules.

Major features include:

- Extended 2 meter receive from 118 - 174 MHz.
- 50 W output on 2 meters and 35 W on 440 MHz.
- The TM-942A covers 2 meters/440MHz/1200MHz at 50W / 35W / 10W. The TM-642A covers 144 MHz and 220 MHz at 50 W/25W.
- Multiple scanning modes: band scan, programmable band scan, memory scan, MHz scan, call-VFO-memory scan, call-VFO scan, auto memory scan.
- Built-in DTSS with pager. Built-in CTCSS encode. Decode requires the optional TSU-7.
- Independent receive function with display for each band. Receives all installed units at the same time. Choice of single, dual or triple band operation. Selectable full (triple band) cross-band operation is available.

- 100 memory channels plus a call channel for each band. Each memory stores frequency, tone, CTCSS, step, shift, rev, DTSS and pager information. Each memory will store both transmit and receive frequency for odd offsets.
- Direct frequency input to the VFO using the supplied DTMF microphone.
- S-meter squelch, noise squelch and auto squelch.
- Time-out timer and auto power-off with warning beeper.
- Automatic band change.
- 3-position RF output power control.
- Remote front panel mount kits optional. DFK-3 for interconnecting knob panel to LCD panel, DFK-4 contains 13 foot panel cable, and DFK-7 for 22 foot separation with longer power cord and three audio cables.

## Dual-Band Mobiles



**TM-733A**

\$759.95

Suggested List Price—Call for Quote

The TM-733A FM dual bander is specially tailored for hassle free mobile communications with a unique "6-in-1" programmable memory. Six entire operating profiles including everything from frequency range to dimmer level can be stored for instant recall. The transceiver is packed with a complement of sophisticated features.

Major features include:

- Dual receive on the same band.
- 50 watts output on 2 meters (144 – 148 MHz), 35 watts output on 70 cm (438 – 450 MHz).
- 3-position RF output power control.
- 72 memory channels.
- "6-in-1" programmable memory.
- Dual receive available on the same band (VHF+VHF or UHF+UHF).
- Time-operated and carrier operated scan stop modes.
- Built-in DTSS selective calling with page.
- Multi-Function scanning allows band scan, memory scan and even memory channel lockout.
- Incremental MHz key.
- Built-in CTCSS encoder with optional TSU-8 decoder.
- Wireless clone function.
- S-meter squelch.
- Tone alert system with elapsed time indicator.
- Separate speaker terminals for each band (switchable)
- Multifunction DTMF microphone supplied.
- Repeater reverse and offset switch
- Auto repeater offsets (144 MHz).
- Built-in jack for 1200 / 9600 bps packet use.
- AIP (Kenwood's exclusive circuit for enhancing RX performance).
- Optional quick-release kit available as an added anti-theft measure.
- ASC (auto Simplex Checker)

# VHF/UHF MOBILES

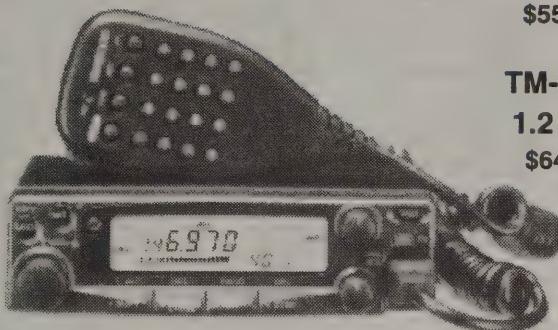
## Single-Band FM Mobiles

**TM-251A****2 meters**

\$529.95

**TM-331A****220 MHz**

\$539.95

Suggested List  
Prices—  
Call for Quotes

These new compact single-band FM transceivers from Kenwood are available for 2 meters, 220 MHz, 70 cm or 1.2 GHz. The TM-251 also covers the aircraft frequencies on receive.

Major features include:

- 41 multifunction memory channels storing frequency (200 with optional ME-1), repeater offset, CTCSS frequency. Encode built-in. Decode with optional TSU-8.
- High power output. 50 W (TM-251A), 25 W (TM-331A), 35 W (TM-451A) and 10 W (TM-541A).
- TM-251A is for 2 m with a 70 cm receiver; TM-451A is for 70 cm and includes a 2 m receiver; TM-541A is for 1200 MHz with a 70 cm receiver.
- Automatic offsets on the TM-251.
- Dual menu system, DTSS with page and S-meter squelch.

- Multifunctional microphone allows control of the major functions of the radio right from the microphone. Microphone includes a 16 key DTMF pad.
- 6-pin mini DIN connector (1200/9600 bps packet) (Not with TM-331A).
- Fuzzy logic control for tuning.
- Auto power off and time out function.
- Band scan, program scan, memory scan, call scan.
- Fixed band and same band repeater functions (cross-band duplex).
- Built-in digital recording system.
- 10 DTMF memory (15 digits)

## 2-Meter Mobile

**TM-241A**

\$459.95

Suggested List Price  
Call for Quote

This is a compact 2-meter, single band mobile FM transceiver. It also covers the aircraft frequencies on receive.

Major features include:

- 20 multifunction memory channels. Encode built-in. Decode with optional KQT-8.

- Optional DTSS unit allows selective calling and paging (DTU-2).
- 50 watts output.
- Automatic offsets.

## All Mode Mobiles

**TM-451A****70 cm**

\$559.95

**TM-541A****1.2 GHz**

\$649.95

**TM-255A****2 Meters**

\$1109.95

**TM-455A****70 cm**

\$1279.95

Suggested List Prices—Call for Quotes

This innovative family of radios, the TM-255A (144 MHz) and TM-455A (430-440 MHz), features a detachable front panel for easy mounting in any vehicle.

Major features include:

- 40 watts (TM-255A) and 35 watts (TM-455A) output with high / low switch.
- Operates in FM, SSB, and CW.
- 6-pin mini connector for 1200/9600bps packet.
- Twin tuning with dual menu system.
- IF Shift (SSB and CW) and pulse noise blower.
- 101 memories and multiple scanning functions.
- DDS (Direct Digital Synthesis) with fuzzy logic control.
- Tone alert with elapsed timer.
- Built-in CTCSS encoder. Optional TSU-8 tone decoder.
- Built-in TX temperature compensated crystal oscillator.

**Attention Internet Users**

Look for Ham Radio Outlet  
on the World-Wide Web.

Ham Radio Outlet's Home Page Info:  
[HTTP://WWW.HAMRADIO.COM](http://WWW.HAMRADIO.COM)

Also E-Mail:

West Coast, Ken, K1ZKM:

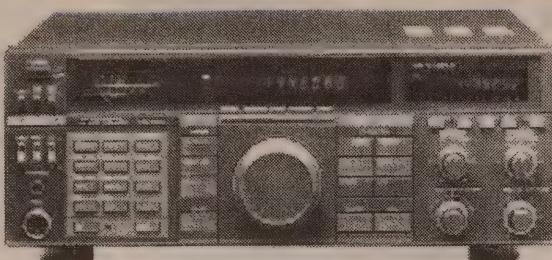
[KLM@NETCOM.COM](mailto:KLM@NETCOM.COM)

East Coast, Chuck, KM4NZ:

[CWYRICK@CWYRICK.MV.COM](mailto:CWYRICK@CWYRICK.MV.COM)

# KENWOOD

## VHF/UHF All Mode



**TS-790A**

**\$2149.95**

Suggested List Price—Call for Quote

The TS-790A was designed to be the ultimate in VHF/UHF all-mode operation. Special features make it easy to use as an Oscar station.

Major features include:

- Operates all modes SSB, CW, FM.
- 2m and 440 MHz are standard with dual displays.
- Selectable AGC (fast / slow).
- Dual VFO with tracking.
- Receives 140-168 MHz. Modifiable for MARS / CAP transmitting.
- IF shift, RIT, noise blanker, and dual watch.
- Channelized tuning for normal FM repeater operation.
- 59 memories with alert and call channels.
- Standard and non-standard channel splits can be stored in memories.
- Optional 1.2 GHz with UT-10.
- Optional VS-2 voice synthesizer and optional TSU-5 decode unit.
- External 13.8 VDC power supply is required such as the Kenwood PS-31.

### 24 Hour FAX Order Numbers

Anaheim	714-533-9485
Atlanta	404-263-9548
Denver	303-745-7394
New Castle	302-322-8808
Oakland	510-534-0729
Phoenix	602-242-3481
Portland	503-684-0469
Salem	603-898-1041
San Diego	619-560-1705
Sunnyvale	408-736-9499
Van Nuys/Burbank	818-988-4326
Woodbridge	703-494-3679

# VHF/UHF BASE

## Kenwood VHF / UHF Specifications

Model	Power Supply	Current Drain					Sugg. List
		DC	Transmit	Receive	Output Power	Sensitivity	
TM-241A	13.8 V	11 A	0.6 A	50 W	<.16 µV		\$459.95
TM-251A	13.8 V	11 A	0.6 A	50 W	<.16 µV		\$529.95
TM-331A	13.8 V	6.5 A	0.6 A	25 W	<.16 µV		\$539.95
TM-451A	13.8 V	10 A	0.6 A	35 W	<.16 µV		\$559.95
TM-541A	13.8 V	6 A	0.6 A	10 W	<.16 µV		\$649.95
TM-642A**	13.8 V		1.2 A	50V/25W†	<.16 µV		\$939.95
TM-733A	13.8 V	11.5 A	1.2 A	50V/35U	<.16 µV		\$759.95
TM-742A	13.8 V	11.5 A	1.2 A	50V/35U	<.16 µV		\$939.95
UT-285**		11.5 A	1.2 A	50 W	<.16 µV		\$339.95
UT-50S**		11.5 A	1.2 A	50 W	<.16 µV		\$369.95
UT-220S**		7 A	1.2 A	25 W	<.16 µV		\$369.95
UT-1200**		6.5 A	1.2 A	10 W	<.16 µV		\$439.95
TM-255A	13.8 V	13 A	.9 A	40 W	<.13 µV	2.2 kHz	\$1,109.95
TM-455A	13.8 V	15 A	.9 A	35 W	<.11 µV	2.2 kHz	\$1,279.95
TS-790A	13.8 V	15 A	2.5 A		<.22 µV †	±9.9 kHz #	\$2,149.95
TM-942A	13.8 V	11.5 A	1.2 A	@	<.16 µV		\$1,279.95

†SSB/CW <.16      †† 220 MHz      # SSB/CW ± 1.9

\* VHF FM/CW 45 W; UHF FM/CW 40 W; 1200 MHz FM/CW/SSB 10W; VHF SSB 35 W; UHF SSB :

\*\*These modules used by TM-641, TM-942, TM-741A also. —

@ VHF 50W; UHF 35W; 1200 MHz 1

## Kenwood Power Cables

Part Number	Radio	HRO Price
PG-2X	TS-140, 690, 790, 450, 850, 130, 440	\$34.95
PG-2N	TM-2530/50/70, 721, 621A, 221/321/421, 241, 231/431/531, 251/451/551, 255/455, 441, 201B, 401B, 541, 631, 642A, 731, 741, 941, 732A, 733A, 642A, 742A, 942A, TR-751A	\$15.95
PG-2W	TH-26, 46, 28, 48, 79	\$14.95
PG-2Y	TS-50S/60S	\$38.95
KLF-3	TH-26, 27, 46, 47	\$23.95
PG-3H	TH-28, 48, 78	\$34.95

## Handheld Battery Packs / Chargers

Battery	Voltage	Rating MAH	Desk Charger	Radio Series	HRO Price
KNB-5A	7.2	800	KSC-7/8	TH-25/26/45/46/55/75/77	\$76.95
KNB-6A	7.2	1100	KSC-7/8	TH-25/26/45/46/55/75/77	\$97.50
KNB-7A	12	800	KSC-7/8	TH-25/26/45/46/55/75/77	\$76.95
PB-5	7.2	200	KSC-7/8	TH-25/26/45/46/55/75/77	\$76.95
PB-9	7.2	600	KSC-7/8	TH-25/26/45/46/55/75/77	\$70.95
PB-12	12	500	BC-7	TH-205/215/225/315/415	\$66.95
PB-13	7.2	700	BC-15A	TH-27/47/28/48/78	\$63.95
PB-14	12	300	BC-15A	TH-27/47/28/48/78	\$89.95
PB-17	12	700	BC-15A	TH-27/47/28/48/78	\$99.95
PB-18	7.2	1100	BC-15A	TH-27/47/28/48/78	\$86.95
PB-21	7.2	180	N/A	TH-21/31/41	\$29.95
PB-21H	7.2	500	N/A	TH-21/31/41	\$49.95
PB-24	9.6	500	N/A	TR-2400	\$54.95
PB-26	8.4	450	ST-2	TR-2500/2600	\$64.95
PB-32	6	600	KSC-14	TH-22AT/42AT/79A	64.95
PB-33	6	1200	KSC-14	TH-22AT/42AT/79A	89.95
PB-34	9.6	600	KSC-14	TH-22AT/42AT/79A	89.95

# VHF/UHF ACCESSORIES

## Kenwood VHF Accessories

Option	Model	211A 411A	221A 321A 421A 521A	231A 331A 431A 531A	241A 441A 541A	251A 451A 551A	255A 455A	711A 811A	751A 851A	2530A 2550A 2570A	4100A	621A 721A	631A 731A	732A	733A	642A 742A 942A	641A 741A	941A	HRO Price
<b>Microphone</b>																			
Hand	MC-43S	*	*	*				*	*	*	*	*	*					\$58.95	
Hand	MC-44DM	*	std	std								std						\$74.95	
Hand	MC-45												*		*	*	*	\$41.95	
Hand	MC-45DM				std	std							std	std	std	std	std	\$74.95	
Hand	MC-48B	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*	\$78.95	
Desk	MC-60A	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	\$151.95	
Desk	MC-80	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	\$107.95	
Desk	MC-85	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	\$164.95	
<b>Modular Mic Switch</b>	MJ-89															*		\$67.95	
<b>External Speaker</b>	SP-41	*	*	*	*			*		*	*	*	*	*	*	*	*	\$48.95	
	SP-50B	*	*	*	*			*		*	*	*	*	*	*	*	*	\$52.95	
<b>Voice Synthesizer</b>	VS-1						*	*										\$65.95	
	VS-2																	\$67.95	
<b>Noise Filter</b>	PG-3B	*	*	*	*			*		*	*	*	*	*	*	*	*	\$29.95	
	TU-5						*											\$52.95	
	TU-7							*		*								\$49.95	
	TSU-5	*																\$59.95	
<b>Tone Decoder</b>	KQT-8		*	*								*	*					\$46.95	
	TSU-7												*		*	*	*	\$55.95	
	TSU-8					*							*		*	*	*	\$55.95	
<b>DTMF Unit</b>	DTU-2			*	*													\$29.95	
<b>Memory Unit</b>	ME-1				*													\$38.95	
<b>Mobile Mount</b>	MB-11										*	*	*		*	*	*	\$33.95	
	MB-14														*			\$47.95	
	MB-201	*	*	*											*			\$24.95	
	MB-430						*											\$43.95	
<b>Power Cable</b>	PG-2N	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	\$15.95	
<b>Digital Recording Unit</b>	DRU-1			*	*													\$109.95	
<b>Data Cable</b>	PG-5A																	\$14.95	
<b>Extension Cables</b>	DFK-3*														*			\$24.95	
	13'														*			\$54.95	
	DFK-4*														*			\$84.95	
	22'														*				

\* See additional information on page 24.

### WEST

Kenwood Communications  
Corporation  
2201 East Dominguez Street  
P.O. Box 22745  
Long Beach, CA 90801

**Customer Relations:**  
(310) 639-5300  
**FAX:** (310) 631-3913  
Hours M-F: 8:30 am - 4:00 pm PT

**Parts:** (800) 262-1312  
(310) 515-0207

Hours M-F: 8:30 am - 4:30 pm PT

### Kenwood's Repair Facilities

Bulletin Board (Free):  
(310) 761-8284

On line 24 Hours a day,  
7 days a week.

#### Modem Settings:

No parity, 8 data bits, 1 stop bit  
9600 baud or less

### EAST

Kenwood  
Service Center East  
829 South Lynnhaven Pkwy.  
Suite 130  
Virginia Beach, VA 23452

**Service Questions Only**  
(804) 340-1702  
**FAX:** (804) 340-6809

Hours M-F: 10:00 am - 6:00 pm ET

**Parts:** (800) 637-0388  
(516) 483-5742

Hours M-F: 9:00 am - 6:30 pm ET

# KENWOOD

## Dual Band

### TH-79A (D)

\$599.95

Suggested List Prices  
Call for Quote

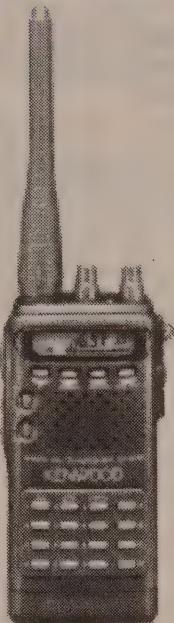
**NEW!**



Kenwood's new TH-79A (D) Deluxe dual-band handheld offers the optimum combination of operating ease and powerful performance in a compact, lightweight design.

Major features include:

- Skip-Scan feature now included.
- Dot-matrix LCD and menu system. Displays frequency data and a menu system with full alphanumeric function display and settings
- 2.7 watts on 2 meters. 2.0 watts on 70 cm with the standard PB-32 NiCd battery.
- 5.0 watts on both bands with optional PB-34 NiCd battery or with 13.8 VDC operation.
- 82 non-volatile memory channels, with ID. An alphanumeric ID (max. 7 characters) can be stored with each channel. No battery backup is needed.
- Features full-duplex cross-band operation and has the ability to simultaneously receive two frequencies even when on the same band.
- Equipped with a high efficiency FET power module.
- Guide function on the LCD panel display eliminates the need to carry a manual.
- DTMF key pad with DTMF memory function.
- Dual Tone Squelch with page.



### TH-22AT

2 Meters

\$349.95

### TH-42AT

70 cm

\$389.95

Suggested  
List Prices-  
Call for Quotes

These HT's are the latest in Kenwood's line of ultra compact hand held transceivers. These are available for either 2 meters or 440 MHz.

Major features include:

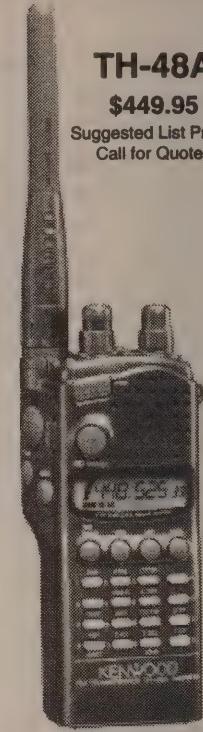
- Extended receiver frequency coverage 136 - 174 MHz on the TH-22AT.
- Five watts output with optional PB-34 battery or with 13.8 VDC power.
- Selectable 3 position output power control.
- Operates from 5.0 to 16 VDC allowing easy connection to the car battery or power supply.
- 40 memories with odd offset capability in one memory.
- Selectable memory CH number display mode.
- Multiple scanning functions.
- Tone alert system with received time indication.
- Wireless cloning function.
- Built-in CTCSS tone encoder.
- Built-in Time Out Timer and busy CH lock out.
- "DTSS" Dual Tone Squelch System with pager function built-in.
- DTMF memory function for auto-dial operation 5, 15 digit channels.



### TH-28A

\$399.95

Suggested List Prices  
Call for Quotes



### TH-48A

\$449.95

Suggested List Prices  
Call for Quotes

The TH-28A covers two meters and includes a built-in UHF receiver: 118-173 MHz RX, 144-147.995 TX, 438-449.995 RX. It has 2.5 watts output with the standard PB-13 battery.

The TH-48A covers 70 cm and includes a built-in two meter receiver: 438-449.995 MHz TX/RX, 136-173.995 MHz RX. It has 2 watts output using the standard PB-13 battery pack.

Features common to both radios are:

- Both handhelds are equipped with a switchable dual-band (144 MHz / 440 MHz) receive capability for semi-duplex cross-band operation.
- Alpha-numeric six character display and memory paging.
- Includes a high capacity NiCd battery pack, the PB-13, for 2.5 watts output on the TH-28A, or 2.0 watts output on the TH-48A.
- Multifunction band scanning or the 41 memory channels (expandable to 240 memories with optional ME-1).
- 5 watts power output available with the optional PB-14 or PB-17, or with 13.8 VDC operation.
- 15 digit auto-dialer, including \*, #, A, B, C, D. Auto-dialer memory for up to 10 phone numbers.
- Built-in digital clock and encode / decode unit.
- 10 minute time-out timer to extend battery life.
- Direct keyboard frequency entry.
- CAP / MARS modifiable with proper license.
- All the TH-27 / TH-78 accessories are compatible.

## Kenwood Handheld Options

Option	Model	21BT 31BT 41BT	22AT 42AT	26AT 46AT	27AT 47AT	28A 48A 78A	25AT 45AT 75AT	77A	79A(D)	215AT 315AT 415AT	225A T	2600A 3600A	HRO Price
Headset	HMC-2		*	*	*	†	*	*	*	*	*	*	\$69.95
	EMC-1								*				\$41.95
Speaker Mic	SMC-31		*		*	†			*				\$59.95
	SMC-32	*	*		*	†	*	*	*	*	*	*	\$48.95
	SMC-33	*	*	*	*	†			*				\$62.95
	SMC-34	*		*	†				*				\$62.95
Prog. Tone Decoder	KQT-8						*						\$46.95
	TSU-7			*			std						\$55.95
	TSU-4									*	*		\$46.95
	TSU-8	*											\$55.95
DC/DC Converter	DC-1			*			*						\$26.95
	DC-26											*	\$38.95
	KVC-1							*					\$33.95
	PG-2W	*		*	*								\$14.95
	PG-2V									*	*		\$14.95
Filtered Cigarette Lighter Cord	KLF-3			*				*					\$23.95
	PG-3E						*			*	*		\$34.95
	PG-3H						*		*				\$29.95
Base Quick Charge	BC-7									*	*		\$114.95
	BC-15A			*	*								\$99.95
	KSC-7		*					*	*				\$99.95
	KSC-14	*								*			\$84.95
	ST-2											*	CALL
Battery Case	BT-8				*	*							\$26.95
	BT-9	*							*				\$29.95
Softcase	SC-27											*	\$19.95
	SC-28							*					\$21.95
	SC-29							*					\$21.95
	SC-31			*									\$21.95
	SC-33					*							\$22.95
	SC-34					*							\$22.95
	SC-37	*											\$22.95
	SC-39	*											\$22.95
	SC-41								*				\$22.95
	SC-43								*				\$22.95
Wall Charger	BC-2	*											\$22.95
	BC-14					*	*						\$24.95
	BC-17		*										CALL

† Not for TH-28 or TH-48

## Kenwood Handheld Specifications

Model	Freq Range	Power Supply	Power Out†	Current Transmi	Current Receive	Sensitivity	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	Sugg. List
TH-22AT	144-148 MHz	6 VDC	3 W	1.3 A	45 mA	<.16 µV	4.6 (11.7	2.2 (5.6	.96 (2.5	10.2 (290	\$349.95
TH-42AT	438-450 MHz	6 VDC	2.5 W	1.6 A	45 mA	<.18 µV	4.6 (11.7	2.2 (5.6	.96 (2.5	9 (242	\$389.95
TH-28A	144-148 MHz	7.2 VDC	2.5 W	1.5 A	60 mA	<.18 µV	4.6 (11.5	1.9 (4.9	1.5 (3.8	12 (330	\$399.95
TH-48A	438-450 MHz	7.2 VDC	2.0 W	1.5 A	70 mA	<.18 µV	4.6 (11.5	1.9 (4.9	1.5 (3.8	12 (330	\$449.95
TH-79A (D)	2m & 440MHz	6 VDC	2.7 W#	1.3 A	80 mA	<.16 µV	5.1 (12.9	2.1 (5.6	1 (2.5	15 (400	\$599.95

† Higher power output with optional batteries # 2 watts for 440 MHz



# STANDARD®

The largest manufacturer of VHF/UHF Amateur Radio equipment in the world.

## Small HTs

**C158A**  
2 Meters in  
Your Pocket  
**\$339.95**

Suggested List Prices  
Call for Quotes

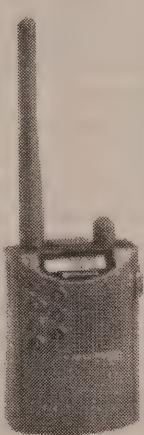
- 130-170 MHz receive.
- 144-148 MHz transmit.
- Power output with standard battery 2.0W.
- 5 Watts at 12 Volts.
- CTCSS encode/decode standard.



**C108A**  
2 Meter  
Handheld  
**\$269.95**

Suggested List  
Call for Quotes

- 144-147.995 MHz transmit.
- 100-174.995 MHz receive.
- Power output with standard battery 0.2W.
- Small and compact.
- CTCSS encode built-in.

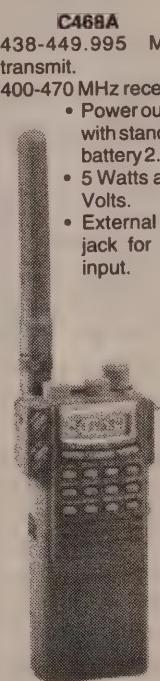


**C168A**  
2 Meter  
**\$469.95**

**C468A**  
440 MHz  
**\$479.95**

Suggested List Prices  
Call for Quotes

- C168A**
- 144-147.995 MHz transmit.
  - 115-175 MHz receive.
  - Receives (AM) Aircraft Band.
  - Power output with standard battery 2.5W.
- C468A**
- 438-449.995 MHz transmit.
  - 400-470 MHz receive.
  - Power output with standard battery 2.5W.
  - 5 Watts at 12 Volts.
  - External DC jack for 12V input.



## Ultra-Thin

**C288A**  
220 MHz Thin  
Handheld  
**\$499.95**

Suggested List Price  
Call for Quote

- 2.5W with standard battery, 5W at 9.6VDC.
- Ten 15-digit autodial memories.
- Advanced H.E.C. technology.
- Slide cover protects keyboard.



## Dual Band

**C178A**  
2 Meters and  
440 MHz  
**\$459.95**

Suggested List Price  
Call for Quote

- 144-147.995 MHz and 438-449.995 MHz transmit.
- 110-174.995 & 320-474.995 MHz receive.
- Power output with standard battery: 2 W (2m).
- 5 Watts at 12VDC (2m).
- 50 mW output on 70 cm.
- AM programmable receive for aircraft.

- Ten 15-digit D T M F memories.
- DTMF Paging/Coded Squelch.



## Tri-Band

**C568A**  
2 M / 70 cm /  
1.2GHz  
**\$689.95**

Suggested List Prices  
Call for Quotes

- 6 twin RX and TX configurations.
- Menu driven transceiver.
- AM programmable & auto detect for VHF aircraft band.
- Small and compact.
- Power output on 2M: 5 W, 2.5 W, or 350 mW.
- 40 memories.
- MARS and CAP mods available.



## Standard Handheld Specifications

Model	Frequency	Power Supply	Power Out Transmit @	Current Transmit	Drain Receive	Sensitivity	Height in	Width in	Depth in	Weight oz
<b>C108A</b>	100-174.995 MHz †	3.0 VDC	.2W	.22 A		.112 µV 12 dB	3.15	2.28	0.98	4.9
<b>C158A</b>	130-170†	7.2 VDC	2.0 W	700 mAh	40 mA	.158 µV 12 dB	5.38	2.2	1.2	12.5
<b>C168A</b>	115-175 MHz †	7.2 VDC	2.5 W	700 mAh	38 ma	.158 µV 12 dB	4.9	1.8	1.2	10
<b>C178A</b>	110-174, 320-474.995†*	7.2 VDC	2.0 W	700 mAh	38 ma	.158 µV 12 dB	4.88	2.2	1.2	12.5
<b>C288A</b>	200-249 MHz †	7.2 VDC	2.5 W	700 mAh	38 ma	.158 µV 12 dB	5.8	2.3	1	10
<b>C468A</b>	350-474.995 MHz †	7.2 VDC	2.5	700 mAh	38 ma	.158 µV 12 dB	4.9	1.8	1.2	10
<b>C568A</b>	110-199.995, 310-485, 800-1299.99 MHz †	7.2 VDC	2.0/2.0/ 50 mw	700 mAh		.158 µV 12 dB	5.3	1.85	1.34	13.8

† Transmit amateur bands only. Frequencies are for receive only \*Am receive for aircraft @Higher power with optional batteries

# VHF / UHF HANDHELDS

## Twin-Band FM Handhelds

**"Everyone loved it"** ...QST - June 1991

QST even used the **C228A** as a reference to compare to other manufacturer's dual-banders!



**C528A**

Deluxe H/T with  
**2 Meters AND 440 MHz**  
\$495.95

Suggested List Price—Call for Quote

- 144-147.995 & 438-449.995 MHz
- 130-170 & 300-470 MHz receive
- Power output w/standard battery 2.5W/2 meters, 2.5W/440 MHz
- Advanced design flex antenna

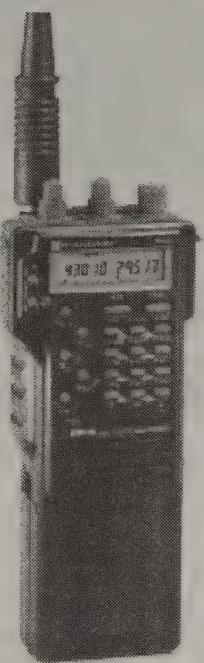


**C228A**

World's only H/T with  
**2 Meters AND 220 MHz**  
\$695.95

Suggested List Price—Call for Quote

- 144-147.995 & 220-224.995 MHz
- 130-174 & 200-245 MHz receive
- Power output w/standard battery 2.5W/2 meters, 2.5W/220 MHz
- Autodial: up to 15 digits



**C628A**

Deluxe H/T with  
**440 MHz AND 1.2 GHz**  
\$727.95

Suggested List Price—Call for Quote

- 438-449.995 & 1240-1300 MHz
- 300-470 & 1240-1300 MHz receive
- Power output w/standard battery 2.5W/440 MHz, 1W/1.2 GHz



**C558A**

Deluxe Super-Compact H/T  
**2 Meters AND 440 MHz**  
\$689.95

Suggested List Price—Call for Quote

- 144-147.995 & 438-449.995 MHz
- 115-170 & 340-470 MHz receive
- Receives (AM) Aircraft Band
- 2.5W/2m, 2.5W/440MHz with standard battery
- Ten 15-digit autodial memories

### C228A / C528A / C628A

- Memory channels: ... 40 (20 +20 "limited") +2 call +2 vfo (non-removable memory unit). .... 40 (opt. 40- or 200-mem. units plug in).
- Sensitivity (ham bands): ..... 0.158 µV for 12dB SINAD. .... 0.158 µV for 12dB SINAD.
- NiCd battery pack: ..... 700 mAh, 7.2VDC standard! Other sizes optional. .... 700 mAh, 7.2VDC std. (fits 228/528/628).
- Power output (12VDC): ..... 5 W high, 2.5W mid, 350mW low (1.2GHz: 1W high). .... 5 W high, 2.5W mid, 350mW low.
- External input voltage range: ..... 6.0 to 16 volts DC. .... 6.0 to 16 V. DC w/included CMA181.
- Battery Save mode: ..... Also automatic power-off mode. .... Also automatic power-off mode. .... Battery save adjustable.
- Subaudible tone deck: ..... CTCSS encode and decode standard. .... CTCSS encode/decode standard.
- Paging function: ..... Also DTMF coded squelch. .... Also DTMF squelch, even w/CTCSS.
- Cross-band operation (full-duplex): ..... Push-button control of cross-band repeat mode. .... P.B. control of Cross-band repeat.
- Twin-Band (not just dual-band): ..... Receives on 1 band while transmitting on the other. .... RX 1 band while TX on other band.
- Scan function: ..... 5 scan modes per band, each band is independent. .... 5 scan modes; 3 types on each band.
- Low current drain (Twin-band): ..... 70mA squelched receive, 32mA battery save. .... 70mA squelched RX, 25mA batt.save.
- Even less current drain in single band mode: .. 36-45mA squelched, 17-18mA batt save. .... 36-45mA sq., 17-18mA batt.save.
- Cloning (duplicate program) over the air: ... Simply transmit to another C228/528/628A. .... Simply transmit to another C558A.
- Size (approximate, w/battery, w/o protrusions): ..... 6.2"H x 2.2"W x 1.2"D. .... 5.1"H x 2.2"W x 1.2"D.
- Weight (approximate): ..... 17 oz with battery and antenna. .... 12.5 oz with battery and antenna.
- MARS and CAP (copy of license required): ..... Info available from Ham Radio Outlet. .... Info available from HRO.



# STANDARD®

Presenting the most advanced, highest quality radios available today!



## C5718DA

\$849.95

Suggested List Price—  
Call for Quote

**What Twin-Band Mobile's  
Speaker-Mike  
Displays Both Bands?**

**What Twin-Band Mobile  
Delivers up to 50 Watts?**

**The Standard C5718DA,  
of course!**

This is the smallest, lowest price twin-band mobile radio that delivers all these features.

Operate the C5718DA from its optional snap-on front panel with twin frequency display (CRC5700) or mount it under a seat or even in the trunk using the optional cable (CAW571 or CAW572).

The C5718DA is designed with packet in mind with out-of-the-box high-speed, 9600 baud and interface for both VHF and UHF bands. Just connect your TNC to the C5718DA and you are on the high speed packet network. Also operates at 1200 and 2400 baud equally well.

### Features include:

- Transmit 144-147.995 and 420-449.995 MHz
- Unsurpassed intermod rejection.
- Built-in antenna duplexer.
- Dual frequency receive. 2 VHF, 2 UHF or VHF / UHF.
- Extended receiver frequency range. 110-199.995 MHz including AM aircraft and 250-499.995 MHz.
- Eight scanning options.
- 40 memories (20 per band) stores frequency, offsets and tones.
- 200 memory channels with optional CMU182.
- CTCSS encode/decode standard.
- Full duplex cross-band operation with CTCSS tones.
- Paging and coded squelch.
- DTMF autopatch dialing.

**The C5718DA  
is Packet Ready.**



## C1208A

\$529.95

Suggested List Price  
Call for Quote

A full featured 2-meter rig that fits anywhere, yet puts out a full 50 watts as well—that's Standards new C1208DA. With all controls and the large liquid crystal display in the speaker / microphone, this rig can mount anywhere. It can be mounted under the seat, behind the dash, or in the trunk (with optional extension cable). All this plus it's packet ready (up to 9600 baud) and includes wide range (100-200 and 250-520 MHz) receive including AM aircraft.

### Other features include:

- Frequency range: TX 144-148; RX 100-199.995 plus 250-519.995 MHz, FM or AM.
- Power output is 50, 10 or 3 watts selectable.
- 100 memories stores frequency, offsets and CTCSS tones.
- CTCSS encode and decode built-in.
- DTMF auto dialing, 10 memories of 15 digits each.
- 6 modes of scanning including priority and CTCSS.
- Built-in quiet cooling fan.
- Mobile mounting bracket and 9-foot power cord included.

# VHF/UHF MOBILES

## Standard Handheld Accessories

Model	Description	C108A	C168A C468A	C158A	C188A C288A C488A	C228A C528A C628A	C178A	C558A	C568A	HRO Price
<b>Microphones/Speakers</b>										
CHP111	Headset/Boom Mic (PTT)	*	*	*	*	*	*	*	*	\$45.95
CHP150	Headset/Boom Mic (VOX AND PTT)	*	*	*	*	*	*	*	*	\$81.00
CNB 600	Helmet clip for CHP150									*
CMP111	Speaker Microphone	*	*	*	*	*	*	*	*	\$54.95
CMP113	Clip-on Submini Microphone with Earphone	*	*	*	*	*	*	*	*	\$44.00
CMP115	Mini Speaker Microphone	*	*	*	*	*	*	*	*	\$50.00
CMP123	Ear microphone									*
<b>Memory</b>										
CMU160	Extra 40-Memory Plug-In Unit (Swap in-and-out)		*					*	*	\$31.00
CMU161	200-Memory Plug-In Unit (Swap in-and-out)	*					*	*	*	\$44.00
CMU181	Extra 40-Memory Plug-In Unit (Swap in-and-out)				*					\$36.00
CMU182	200-Memory Plug-In Unit (Swap in-and-out)			*			*			\$44.00
<b>Batteries, etc</b>										
CNB150	Opt. Small NiCd, 7.2VDC, 400mAh		*		*		*			TBA
CNB151	Standard NiCd Batt, 7.2VDC, 700mAh		*		*		*			\$78.95
CNB151GY	Standard NiCd Batt, 7.2VDC, 700mAh									\$99.95
CNB152	Opt. High-Power NiCd Batt, 12VDC, 600mAh		*		*		*			\$99.95
CNB153	Opt. Long-Life NiCd Batt, 7.2VDC, 1000mAh		*		*		*			\$99.95
CNB160	Opt. Small NiCd, 6VDC, 300mAh		*		*		*			\$99.95
CNB161	Standard NiCd Batt, 7.2VDC, 700mAh		*							\$72.95
CNB162	Opt. High-Power NiCd Batt, 12VDC, 600mAh		*							\$75.95
CNB163	Opt. Long-Life NiCd Batt, 7.2VDC, 1000mAh		*							\$119.95
CNB171	Standard NiCd Batt, 7.2VDC, 700mAh									\$99.95
CNC172	Opt 12V 600 mAh NiCd Batt									\$79.95
CNB173	NiCd Battery 7.2V 1100 mAh									\$120.95
CNB181	Opt. Small NiCd, 4.8VDC, 700mAh									\$99.95
CNB182	Opt. High-Power NiCd Batt, 9.6VDC, 600mAh									\$57.95
CNB183	Opt. Long-Life NiCd Batt, 6.0VDC, 1100mAh									\$99.95
CNB184	Standard NiCd Batt, 6.0VDC, 700mAh									\$95.95
CNB401	NiCd Battery Pack	*								\$67.95
CBT151	Alkaline Case, for 6 AA batteries		*		*					\$19.95
CBT151GY	Alkaline Case, for 6 AA batteries									\$20.95
CBT160	Alkaline Case, for 5 AA batteries		*							\$20.95
CBT171	Battery Case (6 cells)									\$20.95
CBT175	Battery Case (2 cells)									\$17.95
CBT181	Alkaline Case, for 4 AA batteries									\$17.95
CBT182	Alkaline Case, for 5 AA batteries									\$27.95
CAX160	Battery Separation Cable (Remote Battery Adapter)	*								\$50.95
<b>Chargers, etc</b>										
CAW150	Mobile 12 V Power Cable w/Lighter Plug	*	*	*	*	*	*	*	*	\$16.95
CAW151	12V Power Cable	*	*	*	*	*	*	*	*	\$13.95
CAW152	Mobile Cable, Lighter plug & Noise Filter	*	*	*	*	*	*	*	*	\$28.95
CCA160	Chg. Adapt., CBT160(NiCd's)to Wall Chgr. or CMC150	*								\$26.95
CMA181	Mobile 12 V Power Cable w/Lighter Plug (w/Adapter)	*								\$38.95
CMC150	Mobile Charger (not for 12VDC NiCd's or 9.6VDC NiCd's)	*	*	*	*	*	*	*	*	\$27.95
CSA181A	Peak-Detecting Auto-Rapid Desktop Charger	*	*	*	*	*	*	*	*	\$109.95
CSA401A	NiCd Battery Charger	*								\$43.95
<b>Cases, etc</b>										
CAX02	Bottom Cover (pair)		*		*					\$11.95
CAX03	Bottom Cover		*							
CBH160	Spring-Loaded Clip	*	*							\$11.95
CLC151	Std case for CBT151 and CNB151									\$10.95
CLC152	Large Case for CNB152 and CNB153									\$24.95
CLC160	Small Soft Case (use with CNB160)									\$26.95
CLC161	Med. Case (w/CNB161 or CBT160)									\$26.95
CLC162	Large Soft Case (use with CNB162/163)									\$26.95
CLC171	Std case for CBT171 and CNB171									\$27.95
CLC172	Large case for CNB172 and CNB173									\$29.95
CLC181	Small Soft Case (use with 181 or CBT-181)				*					\$18.95
CLC182	Med. Case (w/CNB182/B3/84 or CBT182)				*					\$20.95
CLC401	Standard Soft Case	*								\$26.95
CLC402	Deluxe Soft Case	*								\$26.95
CLC520	Med. Case (w/CNB151 or CBT151)									\$27.95
CLC521	Large Soft Case (use with CNB152/153)									\$27.95
CLC550	Med. Case (w/CNB151 or CBT151)									\$27.95
CLC551	Large Soft Case (use with CNB152/153)									\$30.95
CLC555GN	Pouch (Green)	*	*			*	*	*	*	\$34.95
CLC555OR	Pouch (Orange)	*	*			*	*	*	*	\$34.95
CLC560	Std carrying case (use with CBT171 and CNB171)									TBA
CLC561	Large carrying case (use with CNB172 and CNB173)									TBA
CLC561	Hard carrying case (use with CBT171 and CNB171)									
CMB111	Mobile Bracket	*	*	*	*	*	*	*	*	\$21.95
CMB112	Mobile Bracket	*	*	*	*	*	*	*	*	\$21.95

## Standard Mobile Accessories

Model	Radio	Description								HRO Price
CAW562	C5608DA/C1208DA	13 ft. extnsion cable remotes radio to trunk (mike w/LCD display allows full control)								\$45.95
CAW560	C5608DA/C1208DA	Dual microphone cable for second microphone (allows an additional operating position)								\$44.95
CAW561	C5608DA/C1208DA	6 ft. mic extension cable								\$33.95
CSK12	C5718DA/C5608DA/ C1208DA	External extension speaker (necessary if trunk mounting the radio)								\$47.95
CRC5700	C5718DA	Removable front panel with twin frequency display								\$199.95
CAW570	C5718DA	Split cable for microphone								\$62.95
CAW571	C5718DA	2 meter microphone extension cable								\$43.95
CAW572	C5718DA/C1208DA	4 meter microphone extension cable								\$48.95
CAW573	C5718DA	2 meter extension cable for the front panel (CRC5700)								\$27.95
CAW574	C5718DA	4 meter extension cable for the front panel (CRC5700)								\$36.95
CAW575	C1208DA	Extra 12 volt power cable 15 ft								\$26.95
CAW576	C1208DA	Extra 12 volt power cable 9 ft								\$24.95
CMU182	C5718DA	200 memory option module								\$44.95



**FT-1000D**

**\$5359.95**

Suggested List Price – Call for Quotes

The FT-1000D was designed with optimum performance and user convenience in mind! It incorporates the latest digital and RF technologies to meet today's demanding needs on the HF bands. It employs extensive surface-mount components, 6 microprocessors, and five Direct Digital Synthesizers all integrated into a reliable full-featured transceiver optimized for the serious amateur.

The FT-1000D includes these items as standard features: BPF-1 module for cross-band dual receive; TCXO-1 High Stability Oscillator; XF-C 2.4 kHz SSB filter; XF-D 2.0 kHz SSB Filter; and XF-E 500 Hz CW filter. Options are the XF-F 250 Hz CW filter; XF-455MC 600 Hz sub-receiver CW filter; and the DVS-2 Digital Voice Recording Module.

Selected features include:

- General coverage receiver from 100 kHz to 30 MHz.
- All mode operation (SSB, CW, FSK, AM, FM, Packet). Optimized for digital communications modes.
- Built-in power supply for 110, 117, 220 & 234 VAC 50/60 Hz.
- Transmitter output is 200 watts. (50 watts AM)
- Receiver is quad-conversion with a 108 dB dynamic range.
- Special features for CW operation including CW spot, audio peak filter and variable IF bandwidth.
- Flexible Mode and IF Filter Selection.
- Band pass filter BPF-1 module built-in on FT-1000D.
- Optional digital voice recording with the DVS-2 module.
- Simultaneous dual frequency reception. Each VFO has its own fly-wheel-weighted tuning knob.
- 99 memories storing frequency, mode, filter selection.
- CAT system allowing the radio to be computer controlled.
- Now compatible with K1EA CT program.

**FT-1000**

**\$4229.95**

Suggested List Price – Call for Quotes

For the budget minded ham that wants the top-of-the-line radio, Yaesu offers the FT-1000. It has all the features of the FT-1000D except the BPF-1, TCXO-1, XF-C, XF-D, XF-E listed for the FT-1000D. These may be added later. Additional options are the XF-F 250 Hz CW filter; XF-455MC 600 HZ CW filter and the DVS-2 Digital Voice Recording Module.



**FT-990**

**\$2759.95**

Suggested List Price — Call for Quotes

Based on the remarkable performance of the FT-1000, Yaesu's FT-990 combines the basic technical features of that top-of-the-line model with several recent advances such as a very quiet switching mode AC power supply and Yaesu's exclusive dual digital switched capacitance filters (SCF). All of this makes the FT-990 the best value in high end HF transceivers!

Major features include:

- Frequency coverage: RX 100 kHz to 30 MHz. TX 160m to 10m amateur bands
- Built-in Dual Digital Switch Capacitance Filters.
- Built-in high performance antenna tuner with 39 memories.
- RF frequency shifter speech processor.
- Dual VFO's with Direct Digital Synthesis (DDS).
- 90 memory channels.
- Full and semi break-in CW operation.
- Band stacking VFO system.
- Multimode selection on packet/RTTY.
- Adjustable RF power.
- Variable threshold noise blanker.
- Front panel RX antenna selection.
- Optional digital voice recorder (DVS-2).

A 13.8 VDC version of the FT-990 is also available. The FT-990DC, has the same features as the FT-990 except it does not have the built-in power supply or a built-in CW filter.

Call Toll-Free for HRO's

Discounts on Yaesu Products

# HF TRANSCEIVERS

**FT-900**  
\$1519.95

**FT-900AT**  
\$1719.95

Suggested List Price—Call for Quotes



The FT-900 is a compact, affordable HF transceiver which features a detachable front panel that can be mounted separately from the main body. (A YSK-900 separation kit is required.) This allows you to configure the FT-900 for maximum safety, best display visibility and ease of operation in mobile installations.

Perfect as a high performance base station, the FT-900 quickly doubles as a full featured mobile or Field Day rig.

#### High Performance

The FT-900 provides up to 100 watts power output on all HF amateur bands in CW, SSB and FM modes, and up to 25 watts carrier in AM. General coverage reception is possible from 100 kHz to 30 MHz.

#### Detachable Sub-Panel

The lightweight, detachable sub-panel permits separating the transceiver and mounting the main unit in a remote location. This enables you to keep the most commonly used front-panel controls and display where you need them – in a comfortable and safe location. (YSK-900 separation kit required).

#### Multi-function Display

Operational settings are displayed on a high-contrast backlit LCD, which includes a three-mode bargraph meter with "peak-hold" segments that assist in tuning stations with fluctuating signal strength.

#### Improved CW Operation

The Reverse-Sideband feature switches the receiver carrier point (offset) to help sidestep QRM, and eliminates the need for retuning when switching between LSB and CW (convenient on 40 meters and below.) The adjustable BFO offset lets you match CW pitch to that used by most TNCs or multi-mode decoders. Properly tuned stations will be centered in the receiver IF passband for best copy. The internal electronic keyer has front-panel control of speed, weighting and mode (semi-/full break-in).

#### High-Tech DDS Design

Twin direct-digital synthesizers (DDS) provide pure local signals and fast tx/rx changeover needed for QSK CW operation. A magnetic rotary encoder with selectable 2.5, 5, or 10 Hz tuning steps results in silent, silky-smooth tuning. Frequency accuracy and stability are assured by driving both DDSs from a single master oscillator. The optional TCXO-3 temperature-compensated crystal oscillator is also available for enhanced  $\pm 2$ -ppm stability for 0 to 50 degrees C.

The FT-900 receiver front end features a low-noise, high performance FET RF

amplifier feeding an active double-balanced quad FET ring mixer. The RF amplifier can be by-passed for direct-feed to the mixer (Intercept Point Optimization). For very strong signals a 12 dB attenuator can be inserted for clear copy.

Interference rejection is facilitated by an IF shift and notch circuit. Install the optional XF-100S crystal filter for enhanced SSB and AM narrow-skirt selectivity.

Four microprocessors in the rig are programmed to provide two independent (A/B) VFOs for each band (20 total) holding their own frequencies and mode settings. 100 memories store this information for both VFOs giving a total of 220 independent sets of information. All 100 or selected memories can be scanned and tuned. 10 special memories let you limit the tuning/scanning range.

Other features include a noise blower, all-mode squelch, AF speech processor with adjustable IF offset.

#### Internal Antenna Tuner

The internal ATU-2 antenna tuner has 31 memories which store the most-recent settings for quick recall. The external FC-800 can be remotely installed at the antenna feed point. The antenna tuner is controlled from the front panel.

## Yaesu HF Specifications

Model	Frequency Range	Power Supply		Current Drain		Power Output					Receive Circuitry	Sensitivity 1.8-30 MHz †	RIT/XIT Range	Audio Output	Sugg. List
		AC	DC	Xmit	Rec	AM	FM	SSB	CW	Mike Z					
FT-1000D	100 kHz - 30 MHz	117/234		1050 VA	95 VA	50 W	200 W	200 W	200 W	500-600 $\Omega$	Quad Conversion	<.25 $\mu$ V	$\pm 9.975$ kHz	2 W	\$5,359.95
FT-990	100 kHz - 30 MHz	117/234	#	470 VA	60 VA	25 W	100 W	100 W	100 W	500-600 $\Omega$	Triple Conversion	<.25 $\mu$ V	$\pm 9.975$ kHz	2 W	\$2,759.95
FT-900AT	100 kHz - 30 MHz		13.8 VDC				100 W	100 W	100 W						\$1,719.95
FT-840	100 kHz - 30 MHz		13.8 VDC	20 A	1.2 A	25 W	100 W	100 W	100 W	500-600 $\Omega$	Double Conversion	<.25 $\mu$ V	$\pm 1.25$ kHz	4 W	\$1,099.95
FT-650	24.5 - 56 MHz	120/230	13.8 VDC	500 VA	55 VA	25 W	100 W	100 W	100 W	500-600 $\Omega$	Triple Conversion	<.125 $\mu$ V	$\pm 9.975$ kHz	1.5 W	\$1,899.95

# The FT-990DC version operates on 13.8 VDC only. † Sensitivity measurements for 1.8-30 MHz SSB,CW



**FT-840**

**\$1099.95**

Suggested List Price—Call for Quotes

If you are trading up from an older rig and are on a tight budget, you want the most you can afford in a top-notch HF transceiver. Then the FT-840 is for you. It is right on the money! Consider a mobile HF or field radio and doubt the quality and features of tiny HF rigs? Then the FT-840 is for you. It will not disappoint you!

Built to handle rigorous field operation, the new intense LCD display affords sharp visibility in bright sunlight. Die-cast heat sink and internal thermally switched fan keep the FT-840 running cool. Modular design circuit boards ensure operating efficiency with manufacturing excellence you would expect in much higher priced radios.

For high performance, the FT-840 features a low noise front end that uses the latest in FET RF amplifier design. It has two DDSs and magnetic encoder for silent, smooth tuning and fast switching. Twin band-stacking VFOs and automatic 10m FM repeater offset with selectable CTCSS provide the best for 10m repeater operation.

Blending the high performance digital frequency synthesis techniques from the FT-840 with the operating convenience and affordability of its predecessor, the FT-747GX, the FT-840 adds a choice of two optional remote automatic antenna tuners and a wealth of convenient functions. The FT-840 sets the standard for high performance, affordable, HF transceivers. As a first time rig, back-up, mobile or main station transceiver, the FT-840 has the features and dependability that both beginners and seasoned operators will appreciate.

The FT-840 is of Top-of-the-Line quality with a wealth of features—all at an affordable price. This is just what you would expect from Yaesu. For high-tech performance and a wealth of features that will not break your budget, stop in to an HRO store and see a demonstration. Just call an HRO Toll Free number for the latest price.

#### Features include:

- General coverage receiver from 100 kHz to 30 MHz. TX frequency 160-10m amateur bands.
- Direct Digital Synthesis (DDS).
- IF Shift.
- 100 memory channels (independent TX/RX per memory).
- Twin Band Stacking VFO's.
- FM Repeater Operation with automatic 10 meter repeater offset w/ selectable CTCSS encode.
- CW reverse feature.
- Choice of two optional antenna tuners: FC-10 Matching External Tuner or FC-800 External Remote Tuner.

## Microphones

Yaesu makes two microphones to use with their HF and VHF base station radios.

**MH-1B8**

**\$39.00**

HRO Price

- MH-1B8 is the standard hand microphone that is provided with the FT-767GX, FT-757GXII, FT-747GX, FT-990, FT-650, FT-890, FT-1000 and the FT-736R. This microphone has up-down buttons on the top of the unit for controlling the frequency of the radio.

**MD-1C8**

**\$139.00**

Suggested List  
Call for Quotes



- MD-1C8 is the optional desk microphone that will work with all current Yaesu radios. This unit comes with a desk pedestal and has up-down switches and a VOX lock.

## 24 Hour FAX Order Numbers

Anaheim 714-533-9485

Atlanta 404-263-9548

Denver 303-745-7394

Oakland 510-534-0729

Phoenix 602-242-3481

New Castle 302-322-8808

Portland 503-684-0469

Salem 603-898-1041

San Diego 619-560-1705

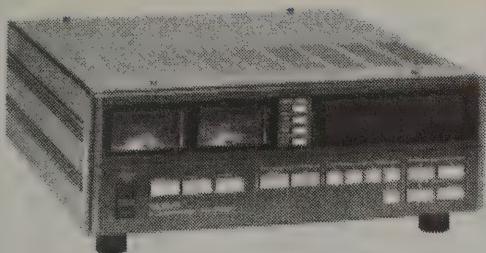
Sunnyvale 408-736-9499

Van Nuys/Burbank 818-988-4326

Woodbridge 703-494-3679

# HF ACCESSORIES

## HF Amplifier



**FL-7000**  
**\$2499.00**

Suggested List—Call for Quotes

Designed to match the Yaesu HF radios, the FL-7000 is a CPU controlled, full break-in, all solid state linear amplifier with built-in power supply and automatic antenna tuner. Power is up to 1.2 kW input on the amateur bands.

When changing bands or retuning the radios, the amplifier automatically retunes itself to match the SWR of the antenna. Tuner settings for each band are stored in lithium-backed RAM for instant recall without the need to transmit.

Up to four different antennas can be connected and automatically selected when the optional FAS-1-4R remote antenna relay is used. The amp covers 160 -15 m and may be modified by the amateur for 10 m operation.

## Meters



**YS-60**

**\$139.95**

Suggested List

**YS-500**

**\$119.95**

Suggested List

Yaesu's in-line SWR / power meters monitor both average and peak transmitter power and voltage standing wave ratio (VSWR) of antenna systems in two way radio stations from 1.6 to 60 MHz (YS-60) or 140 to 525 MHz (YS-500). These compact meters can be located almost anywhere in the station. YS-60 requires 12 VDC for PEP operation.

## Power Supplies



**FP-757HD**

The FP-757HD is a continuous duty power supply with FT-757GX styling but will go nicely with the FT-747GX or FT-890. To permit long periods of operation there is a built-in cooling fan. For improved operation, a front facing speaker is built-in.

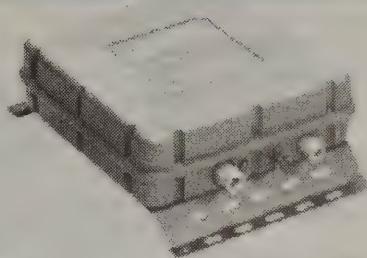
Suggested List **\$349.95**



**FP-800**

The FP-800 is the matching AC power supply for the FT-890. It can also be used with the FT-990DC. It features a large, front mounted built-in speaker and internal cooling fan. The FP-800 is rated at 20 amps at 13.8 VDC. It operates on 117 or 220 volts AC input. Suggested List **\$329.95**

## Antenna Tuner



**FC-800**

The FC-800 is an external remote mount, automatic antenna tuner especially designed for the FT-890 transceiver. The tuner is fully automatic and operations can be controlled from the front panel of the FT-890 for easy operations. The FC-800 has 30 memory locations for quick tuning. Suggested List **\$539.95**

## Attention Internet Users

Look for Ham Radio Outlet  
on the World-Wide Web.

- Ham Radio Outlet's Home Page Info:
- [HTTP://WWW.HAMRADIO.COM](http://WWW.HAMRADIO.COM)
- Also E-Mail:
- West Coast, Ken, K1ZKM:  
KLM@NETCOM.COM
- East Coast, Chuck, KM4NZ:  
CWYRICK@CWYRICK.MV.COM

## Broadband HF Antenna

**YA-30**

**\$255.00**

Sugg. List  
Call for  
Quotes

### Specifications

<b>Frequency Range</b>	1.8-30 MHz (continuous coverage)
<b>Power Rating</b>	150 watts P.E.P
<b>Input Impedance</b>	50 ohms
<b>Commercial SWR</b>	less than 2:1 fro 1.8 - 30 MHz
<b>Amateur SWR</b>	less than 1.9:1 160 - 10m amateur bands
<b>Antenna Length</b>	83 feet
<b>Coaxial Feedline</b>	100 feet of RG-8X with PL-259

The YA-30 broadband dipole antenna is designed to provide optimum performance over a wide frequency range. The usual requirements for multiple antennas or an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Preassembled and pretuned, the YA-30 antenna can be installed in three different ways (horizontal flattop, inverted-V, or sloper). Specifications are shown in the chart above.

# YAESU

## Portable All-Mode

**FT-290R**  
2 meter  
**\$749.95**

**FT-690R**  
6 meter  
**\$889.95**

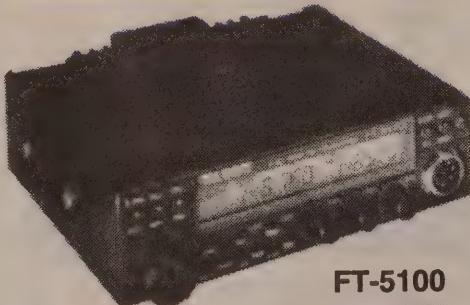
**FT-790R**  
70 cm  
**\$869.95**

Suggested List Prices  
Call for Quotes

The Mark II series of all-mode radios operates on 12 volts from your vehicle or, with the optional C-cell battery pack and shoulder strap, use the radio while on foot. Includes SSB, CW, and FM; 10 memories, LCD display, memory of repeater shift and offset tuning for satellite operation. Great for camping trips.



## Dual Band Mobile



**FT-5100**  
2 meter & 70 cm  
**\$799.95**

Suggested List Price—Call for Quotes

On this "Ultimate Definition of Dual Band" radio you can listen to two 2 meter frequencies or two UHF frequencies at the same time with the In-Band Dual Receive. The FT-5100 has an expanded 2 meter receive range (130-174 MHz) and transmits on 144-148 MHz. The 70 cm band covers 430-450 MHz on transmit and receive. The radio has 94 memories (47 per band) that will store odd splits. It has built-in CTCSS encode, antenna duplexer, full-duplex cross-band operation, packet radio TNC jack and cross-band repeater function. Output is 50 watts on 2 meters and 35 watts on 70 cm. Best of all, the FT-5100 is "affordable".

## Dual Band Mobiles

**FT-8500**

2 meter & 70 cm

**\$849.95**

Suggested List Price—Call for Quotes

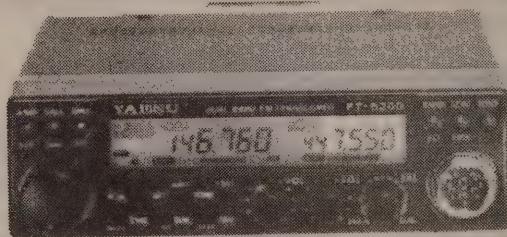
Yaesu again demonstrates their leadership in 2-way radio communications with the introduction of the FT-8500 and Smart Controller™ Microphone. The deluxe, compact FT-8500 defines "high tech" in mobile engineering. Just four simple flicks of the Smart Controller™ Microphone 'joystick'-type lever and you command frequencies, memories and every adjustment.

The Smart Controller™ Mike isn't the only engineering advancement. Watch the unique Spectra-Analyzer™ display activity above and below your current operating channel. The DC voltmeter displays your car battery voltage. Work V+V, U+U or V+U frequencies. Selectable 1200/9600 baud and rear-panel data jack for packet.

Other features include:

- Frequency coverage: 2m - RX 110-174 MHz, TX 144-148 MHz. 70cm - RX 420-500 MHz, TX 430-450 MHz.
- 6 character alphanumeric display.

- 3-level auto mute with mute timer.
- Output power: 2m 50/10/5W. 70cm 35/10/5W.
- 9 memory DTMF autodialer.
- Cloning feature.
- 3 scanning modes, cross band and one way repeat.



**FT-5200**  
2 meter & 70 cm  
**\$839.95**

**FT-6200**  
70 cm & 23 cm  
**\$899.00**

Suggested List Prices—Call for Quotes

The FT-5200 (for the 2m & 70cm bands) and FT-6200 (for the 70cm & 23cm bands) provide mobile crossband, full duplex and detachable front panel design. Features include a built-in antenna duplexer, dual full-frequency liquid crystal display (with signal strength / power output bargraphs for each band), 8-level automatic display / button lighting dimmer, and dual external speaker jacks (one for each band).

Other features include:

- 50 watts on the FT5200 (2m). On the FT-6200: 35 watts (70cm), 10-watts (23cm).
- MW-1 Wireless Microphone / Controller option duplicates the controls (including volume and squelch), adding a DTMF (Dual-Tone, Multi-Frequency) keypad and microphone.
- Paging with the FRC-4 Paging / Selcall option.
- 32 freely tunable memories (sixteen per band) with multiple scanning features.
- An optional cable allows the front panel to be installed separately from the transceiver.
- Built-in 38-tone programmable CTCSS (Continuous Tone-Coded Squelch System) encoder is standard. CTCSS tone squelch operation with the FTS-22 Dual Band CTCSS Decoder option.

# VHF / UHF MOBILES

## VHF / UHF Mobiles

### FT-2500M—2 meter

\$459.95

Suggested List Price  
Call for Quotes



The New FT-2500M keeps all the great features of the popular FT-2400H and goes one better. The easy-to-operate front panel design has rubber coated knobs and a large amber display. The Yaesu exclusive 3-stage advance track tuning feature reduces intermodulation and front-end overload.

This is a powerful, rugged mobile, built as close to commercial grade performance as you can get in amateur frequencies. A one-piece die-cast chassis and extra large heat sink add to the toughness. Yaesu brings you the only mobiles with military spec rating.

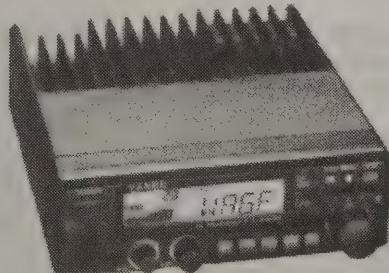
Convenient features abound: The most often used controls are on the front and those you set and forget are neatly hidden behind a flip up panel. The DTMF microphone is backlit. The CTCSS encode is built-in. Both models come with automatic power off and time-out timer. There are 31 memory channels.

The FT-2500M receives 140-174 MHz and transmits on 144-148 MHz. Power output is 50 / 25 / 5 Watts. The backlighting adjustment is either manual or automatic.

Accessories available include: FTS-17A, CTCSS decode unit; FRG-6, DTMF paging unit; SP-4, external speaker; and FP-700, power supply.

### FT-7400H 70 cm \$609.95

Suggested List Price  
Call for Quotes



The FT-7400H takes full advantage of military grade mechanical and electronic construction techniques to bring you a rugged, reliable rig with up to 35 watts power output.

Some features: Backlit LCD display, knobs, and major buttons are automatically controlled by a photosensor. Less-often-needed front panel buttons have a flip-down protective cover. Thirty-one memory channels. Tuning steps are user-selectable from 5 to 50 kHz. 38-tone programmable CTCSS encoder is built-in as standard; decode unit is available as an option. Backlit DTMF microphone is included.

### FT-2200—2 meters

\$489.95

### FT-7200—70 cm

\$619.95

Suggested List Prices  
Call for Quotes



These full featured mobiles from Yaesu have 50 memories, AM "Aircraft" receive and selectable channel only display. The optional MW-2 wireless microphone allows remote operation up to 25 feet from the radio.

FT-2200 features include:

- Wide receiver coverage, 110-180 MHz.
- 50 memory channels (odd split stored in any memory).
- 10 memory DTMF auto dialer.
- CTCSS encode built-in.
- 110-139 MHz AM "Aircraft" receive.
- High power output 50 / 25 / 5 watts.

- Built-in DTMF paging / coded squelch.
- English and Spanish operations manual included.
- Has a bright, easy-to-read LCD display.
- Includes a back-lit DTMF microphone.
- Accessories available are: FTS-27 CTCSS decode unit DVS-3 Digital voice system MW-2 Remote control wireless mike SP-7 External speaker



### FT-912RH – 1.2 GHz \$749.95

Suggested List Price – Call for Quotes

This radio is a 1.2 GHz model in a small package for mobile use. The unit is 1.6 inches high and weighs just a little more than two pounds. There is an LCD display, 21 memory channels, and multiple scanning features. This radio takes messages just like an answering machine with the optional DVS-1 installed. Includes the MH-15C8 DTMF microphone.

# YAESU

## SWL Receiver



**FRG-100**

**\$719.95**

Suggested List Price—Call for Quotes

This high-performance communications receiver provides general coverage reception in CW, SSB, AM and FM modes for 50 kHz to 30 MHz. Microprocessor control of major functions permits ease of operation and features that both new and seasoned shortwave listeners will appreciate.

Reception modes and most receiver functions are push-button selectable from the front panel. A back-lit LCD with adjustable brightness provide frequency read-out (down to 10 Hz) and important operating status.

Fifty fully-tunable memory channels store frequency, mode and filter selection, two additional memories provide band-edge information used in scanning. Selectable steps of 10 Hz, 100 Hz, 1 kHz are standard - other increments are user programmable.

Multi-function scanning (memory, band, selectable group, priority) with carrier or time-delay resume enables searching for new stations, or scanning within a known band. A special Broadcast Band selection mode permits instant selection of 16 pre-programmed international AM broadcast bands (LW, MW through 11 meters), convenient and instant QSY.

Features adjustable BFO, reverse BFO offset and selectable CW sideband. These prevent having to re-tune signals when changing modes and reduces adjacent signal interference. The optional 250 or 500 Hz crystal filter permits even further enhanced CW reception.

Adjustable SSB carrier offset, selectable AGC rate, noise blanker and all-mode squelch and RF attenuation controls are also provided.

Twin 12/24 hour programmable clocks with hourly time annunciator let you keep local time along with another time zone. The programmable On/Off Timer and Sleep Timer along with a remote control jack at the rear of the radio can switch auxiliary recording equipment at programmed times.

The Yaesu CAT System provides a direct link to the CPU in the FRG-100. This allows a personal computer with the Yaesu FIF CAT Interface Unit to add or customize functions such as automatic tuning and scanning as well as remote control of most receiver functions.

Options include: **FM Unit 100** FM Receiver Unit  
**TCXO-4** Temperature Compensated Crystal Oscillator

## VHF / UHF Base



**FT-736R—Multi-Band**

**\$2349.95**

Suggested List Price—Call for Quotes

Designed to meet the needs of the most demanding VHF and UHF operators, the FT-736R includes 144 and 430-450 MHz as standard. Optional units are available for 50 MHz, 220 MHz and 1.2 GHz.

User installable band modules provide 10 watts output on the 50 MHz and 1.2 GHz bands, and 25 watts on the other bands. This is THE radio of choice for satellite operation.

Operating features include IF shift and notch, noise blanker, all-mode VOX and 3-speed AGC. GaAs FET RF amplifiers in the modules above 430 MHz assure low noise and high sensitivity, and a TCXO reference oscillator meets the requirements of specialized UHF applications. One hundred general purpose memories, ten full duplex cross-band memories and five call-channel memories all store mode and receive and transmit frequencies independently.

Fourteen VFOs are provided: two general purpose plus one PMS (Programmable Memory Limit Scanning) on each band, two full duplex VFOs, and up to four clarifier memories. Each of the two full duplex VFOs can be selected so that its receive and transmit frequencies and modes can be displayed and tuned independently, or linked to tune synchronously in opposite directions for satellite operation.

Narrow FM mode reduces adjacent channel interference in crowded areas. Automatic repeater shift and a center tuning meter are useful for FM repeater operation.

A T/R switched DC supply provided for masthead preamps is activated from a front panel switch. AFSK input directly to the modulator is provided for high performance packet operation. The enhanced CAT system allows automation and customization by an external personal computer.

Power the FT-736R from 13.5 V DC or the AC mains through its internal switched mode power supply. Options include the TV-736 Amateur Television Modulator / Demodulator, an electronic CW keyer, and the FTS-8 Tone Squelch Unit. The MH1B8 microphone and 600 Hz CW filter are included.

Call HRO's Friendly Staff of  
Knowledgeable Hams

## 2m / 70 cm Dual-Band Handhelds

### The First Dual Band HT with "Windows"

The FT-51R is state-of-the-art and easy to use. So easy, you won't need an operating manual. Its exclusive, scrolling instruction menu located in the large, backlit display "window" guides you through total operation while simultaneously viewing the main display window.

You'll like some of the other features too. Spectrascope™ displays real time, continuous scanning of activity on adjacent channels in VFO mode or 8 of your favorite memories. A cloning feature duplicates favorite channels to another FT-

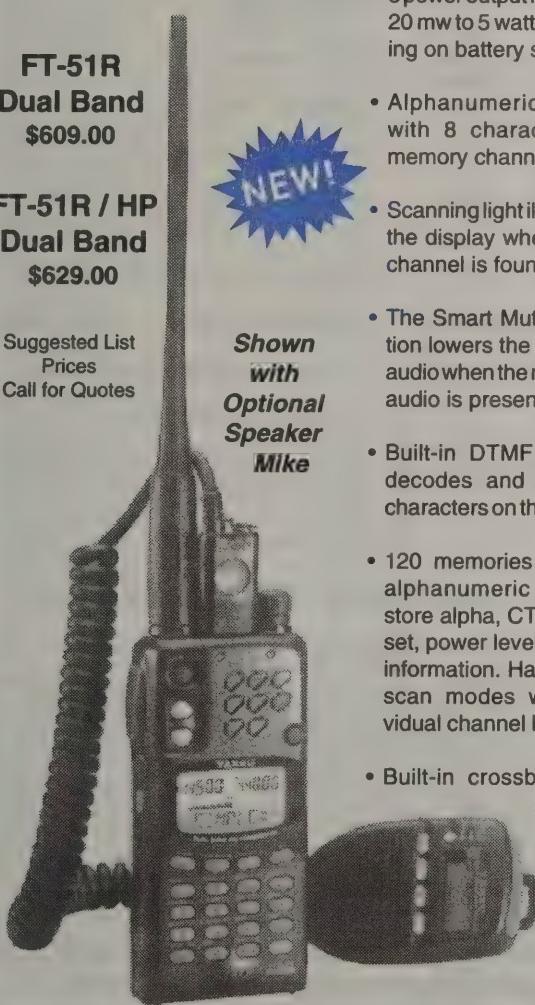
### FT-51R Dual Band \$609.00

### FT-51R / HP Dual Band \$629.00

Suggested List  
Prices  
Call for Quotes

Shown  
with  
Optional  
Speaker  
Mike

**NEW!**

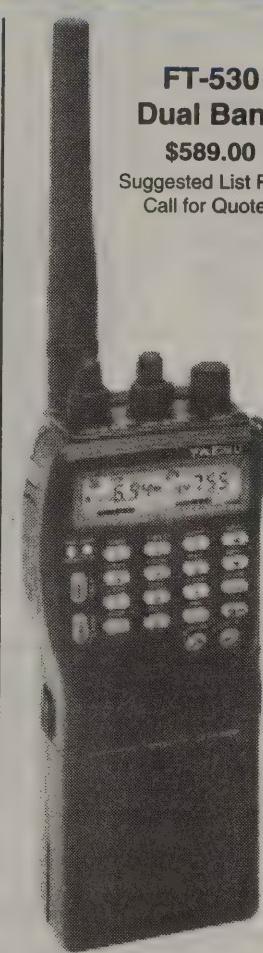


51R. It has digital battery voltage display, five power levels, the largest backlit dual band HT keypad made, Smart Mute™, two VFOs on both VHF and UHF, as well as 2 watt (FT-51R) and 5 watt (FT-51R/HP) versions.

The optional MH-29A2B display microphone allows you to control volume, memory access, VFO, Call channel, band selection and scanning functions.

Other features include:

- 5 power output levels from 20 mw to 5 watts depending on battery selection.
- Alphanumeric display with 8 characters per memory channel.
- Scanning light illuminates the display when a busy channel is found.
- The Smart Mute™ function lowers the sub-band audio when the main band audio is present.
- Built-in DTMF decoder decodes and shows 8 characters on the display.
- 120 memories (80 with alphanumeric display) store alpha, CTCSS, offset, power level and split information. Has multiple scan modes with individual channel lock-outs.
- Built-in crossband and one way repeat functions.



### FT-530 Dual Band \$589.00

Suggested List Price  
Call for Quotes

5-1/2 digit frequency readouts and indicators for most programmable functions. Also displayed are a relative signal strength and power output on separate bar graph meters.

The FT-530 includes dual simultaneous reception of two frequencies, either on different bands or on the same band. This allows you to mix VHF/VHF or VHF/UHF reception. Separate volume and squelch controls are provided for each band.

FT-530 features include:

- Digital battery voltage display.
- 82 memory channels (41 freely-tunable memories per band that are programmable from the front panel keyboard).
- Built-in VOX w/selectable hangtime.
- Clock with alarm/timer functions.
- Dual CTCSS encode / decode built-in.
- DC jack on top panel for power from an external 13.8 VDC source.
- Extended frequency receive coverage from 130-174 MHz.
- Full-duplex cross-band operation.
- Automatic Repeater Shift gives standard repeater shifts automatically.
- Built-in TX / RX battery savers.
- DTMF selective calling and private paging capabilities.

The FT-530 is the deluxe compact grandchild of the first-ever dual-band VHF/UHF handheld, the FT-727R. Smaller than the FT-470, the FT-530 uses dual micro-processor control, permitting easier operation and more features than its predecessors.

With a die-cast alloy rear case / heat sink and thick high impact polycarbonate plastic front panel, The FT-530 provides professional-grade ruggedness ideal for demanding applications.

The LCD display and translucent keypad have selectable back-lighting modes, provide

# YAESU



**NEW!**

**FT-11R**  
2 meters  
\$389.00

**FT-11R-HP**  
2 meters  
\$399.00

**FT-41R**  
70 cm  
\$459.00

Suggested List Prices  
Call for Quotes

Yaesu's newest handhelds are small, compact transceivers with easy operation. The new FT-11R-HP now is a high-power, 5 watt version of this compact handheld.

**FT-23R**  
2 meters  
\$309.00

**FT-33R**  
220 MHz  
\$369.00

Suggested List Prices  
Call for Quotes



**FT911**  
1.2 GHz  
\$569.95

Suggested List Prices  
Call for Quotes

This ultra-compact full-featured handheld 1.2 GHz offers features only found previously in larger units.

## Features include:

- New compact battery design— 4.8 volts produces 1.5 watts output.
- Up/down volume/squelch controls are back-lit.
- Wide receive coverage on FR-11; 100-180 MHz, AM aircraft receive (110-136 MHz).
- 6 character alpha numeric display.
- MOSFET power module and TX/TX battery savers.
- 5 watts output with 9.6 VDC (optional battery required)
- Large full size back-lit DTMF keypad.
- 150 memory channels.
- Built-in DTMF paging / coded squelch.

Yaesu's original compact hand-holds are still available. They offer the budget-minded amateur a price option in selecting a handheld. Both models have LCD display with S meter.

- Up to five watts output with optional FNB-12S.
- Multiple scanning options.
- 10 memories with 7 storing odd splits.
- Aluminum alloy case with water resistant seals.
- Optional: CTCSS encode / decode (FTS-12) and DTMF pad (FTT-4).
- Auto battery saver circuit.

## Features include:

- 49 memories and 2 VFO's.
- Multiple scanning options.
- Uses the same battery packs as the FT-23 series. The FNB-17 is the standard pack.
- Rubber gasket seals offer protection.
- Standard CTCSS encode / decode included.
- Backlit keyboard and large LCD display.
- Automatic Frequency Control
- DTMF encode pad with 10 auto-dial memories and direct key pad entry.
- Automatic power off system.
- VOX operation with optional YH-2 headset.

## Yaesu Handhelds

Model	Frequency	Mode	Pwr Supply	Power Out	Current Transmit	Drain Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	Sugg. List
FT-11	144-148 MHz †	FM	4.8 VDC	1.5 W*	900 mA	16 mA	.15 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	9.5(280)	\$389.95
FT-11R-HP	144-148 MHz †	FM	9.6 VDC	5 W	1.5 A @ 5W	17 mA	.15 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	13.9(400)	\$399.95
FT-23R	144-148 MHz	FM	7.2 VDC	2 W*	900 mA	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	\$309.95
FT-33R	220-225 MHz	FM	12 VDC	5 W	1.3 A	19 mA	.25 µV / 12dB	4.8 (12.2)	2.3(5.5)	1.3(3.2)	15(430)	\$369.95
FT-41R	440-450 MHz	FM	4.8 VDC	1.5 W*	900 mA	15 mA	.17 µV / 12dB	3.9 (9.9)	2.3(5.5)	1.0(2.5)	9.5(280)	\$379.95
FT-51R	2m/70 cm	FM	7.2 VDC	2.0/1.5 W*	900 mA	195 mA	.15 µV / 12dB	4.5 (12.3)	2.3 (5.5)	1.0 (2.6)	12 (330)	\$609.00
FT-51R/HP	2m/70 cm	FM	4.8 VDC	2.0/1.5 W*	1.6/1.9 A	195 mA	.15 µV / 12dB	5.7 (14.6)	2.3 (5.5)	1.0 (2.6)	16.4 (450)	\$629.95
FT-911	1240-1300 MHz	FM	7.2 VDC	1W	900 mA	150 mA	.2 µV / 12dB	4.8(12.2)	2.3(5.5)	1.3(3.2)	13(380)	\$569.95
FT-530	2m/70 cm	FM	7.2 VDC	2.0/1.5 W*	900 mA	190 mA	.18 µV / 12 dB	5.3(13.4)	2.3(5.5)	1.3(3.3)	18(530)	\$589.95

\* Power output can be increased depending on the battery pack selected

† Extended receiver range and AM aircraft capabilities

# HANDHELDS

## Yaesu Handheld Accessories

Accessory	Model	11 41	51R	23R 33R 73R	26	76	209RH1 09RH70 9RH	103R 203R 703R	411 811 911	415 815	416 816	470	530	HRO Price
Headset/Boom Mike	YH-2			*	*	*	*	*	*	*	*	*	*	\$35.95
VOX Headset	VC-22	*												\$59.95
Speaker/Mike	MH-12	*		*	*	*	*	*	*	*	*	*	*	\$50.95
Speaker/Mike	MH-32	*		*	*	*	*	*	*	*	*	*	*	\$40.95
Speaker/Mike Lapel	MH-19	*		*	*	*	*	*	*	*	*	*	*	\$46.95
Speaker/Mike w/Display	MH-29		*										*	\$109.95
Tone Squelch	FTS-6					*								\$53.95
Tone squelch	FTS-12			*										\$62.95
Tone Squelch	FTS-17A				*				std	std	std	std	std	\$62.95
CTCSS Decode	FTS-26						*	*					*	\$59.95
DC/DC adapter	PA-3						*	*						\$39.95
DC/DC adapter	PA-6			*					*				*	\$30.95
DC/DC adapter	PA-10A	*	*											\$66.95
DC/DC adapter	EDC-5B			*					*	*			*	\$25.95
Mobile Bracket	MMB-32A			*					*					\$14.95
Mobile Bracket	MMB-46												*	\$15.95
Wall Charger 117 VAC	NC-9B						*	*						\$14.95
Wall Charger 117 VAC	NC-18B	*	*				std	*	*	*	*	*	*	\$15.95
Wall Charger 117 VAC	NC-28B	*	*						std	std	std	std	std	\$15.95
Wall Charger 117 VAC	NC-34B				*									\$15.95
Wall Charger 220 VAC	NC-9C						*	*						\$15.95
Wall Charger 220 VAC	NC-18C	*			*		*	*		*	*	*	*	\$16.95
Wall Charger 220 VAC	NC-28C	*			*					*	*	*	*	\$16.95
Wall Charger 220 VAC	NC-34C	*			*					*	*	*	*	\$16.95
Mobile Charger	CD-2	*												\$99.00
Quick charger	NC-37			*						*			*	\$119.95
Quick charger	NC-50	*	*	*	*				*	*	*	*	*	\$103.95
Battery 200 mAh 7.2V	FNB-9			*						*				CALL
Battery 600 mAh 12V	FNB-12S			*						*				\$71.95
Battery 1000 mAh 7.2V	FNB-14			*						*				\$71.95
Battery 600 mAh 7.2 V	FNB-17			std						std				\$52.95
Battery 600 mAh 7.2 V	FNB-25						std							\$53.95
Battery 1000 mAh 7.2 V	FNB-26						*							\$83.95
Battery 600 mAh 12 V	FNB-27						*							\$83.95
Battery 600 mAh 4.8 V	FNB-31	*	*											\$57.95
Battery 1000 mAh 4.8 V	FNB-33	*	*											\$83.95
Battery 600 mAh 9.6 V	FNB-38	*	*											\$83.95
Battery case	FBA-5A						*	*						\$19.95
Battery case	FBA-12				*					*	*		*	\$23.95
Battery case	FBA-14	*	*											\$21.95
Battery case AA batteries	FBA-17			*					*				*	\$25.95
Radio case FNB-11	CSC-38								*					\$22.95
Radio case FNB-9/FNB-17	CSC-43													\$22.95
Radio case FNB-12	CSC-45													\$22.95
Radio Case FNB-25	CSC-50									*	*			\$22.95
Radio Case FNB-26/27	CSC-52									*	*			\$22.95
Radio case FNB-25/FBA12	CSC-53						*							\$22.95
Radio case FNB-26/27	CSC-55						*							\$22.95
Radio Case FNB-25	CSC-56												*	\$22.95
Radio case FNB-26/27	CSC-58												*	\$22.95

## Yaesu Handheld Batteries and Chargers

Battery	Voltage VDC	Rating mAh	Wall Charger	Desk Charger	Radio Series	HRO Price
FNB-2	10.8	425	-	NC-8	FT-208/708	\$49.95
FNB-4A	12	500	NC-18	NC-15	FT-727/109/209/709	\$64.95
FNB-9	7.2	200	NC-27	NC-37	FT-23/33/73/411/470	CALL
FNB-12S	12	600	NC-18	NC-37	FT-23/33/73/411/470	\$71.95
FNB-14	7.2	1000	NC-34	NC-37	FT-23/33/73/411/470	\$71.95
FNB-17	7.2	600	NC-28	NC-37	FT-23/33/73/411/470	\$52.95
FNB-25	7.2	600	NC-28B	NC-50	FT-26/76/415/416/ 530/815/816	\$55.95
FNB-26	7.2	1000	NC-34B	NC-50	FT-26/76/415/416/ 530/815/816	\$83.95
FNB-27	12	600	NC-18B	NC-50	FT-26/76/415/416/ 530/815/816	\$83.95
FNB-31	4.8	600		NC-50	FT-11/41/51	\$57.95
FNB-33	4.8	1000		NC-50	FT-11/41/51	\$83.95
FNB-38	9.6	600		NC-50	FT-11/41/51	\$83.95

## NC-50

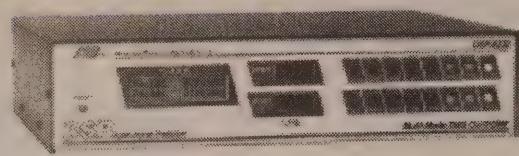
### Charger Adapters

The NC-50 quick batter charger will support most Yaesu handheld batteries. An appropriate adapter will be required. The adapters and batteries supported are shown in the table below.

Model	Batteries Supported	HRO Price
CA-7	FNB-12/14/17	\$25.95
CA-8	FNB-25/26/27	\$25.95
CA-10	FNB-31/33/38	\$17.95



# PACKET



## DSP Multi-Mode Data Controllers

### DSP-2232

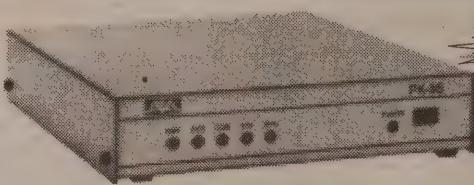
**\$999.00**

Suggested List Prices—Call for Quotes

### DSP-1232

**\$789.00**

These state-of-the-art controllers use digital signal processing (DSP) technology with the Motorola 56001 processor. Built-in software modems include all PK-232 modems, all satellite modems (400, 1200, 4800, and 9600 eq bps for PACSAT and OSCAR), 9600 bps K9NG/G3RUH, Analog FAX HF and APT, Analog SSTV, 2400 bps DPSK and much more! Dual simultaneous ports let you gateway from packet to AMTOR, packet to PACTOR, and packet to packet. A multipurpose LCD display keeps you on top of all activity. PACTOR, Gateway, up/down Doppler shift for PSK modems, and up/down frequency stepping to control the radio's frequency have been added. Cables and connectors included. 12 VDC required. Single port on DSP-1232 and no LCD (fully upgradable to DSP-2232). Limited warranty.



Software  
Included

## PK-96 9600 & 1200 bps Packet TNC

**32K RAM (18K Mailbox): \$229.00**

**128K RAM (100K Mailbox): \$279.00**

Suggested List Prices - Call for Quotes

The PK-96, 9600/1200 bps packet TNC has 1200 bps AFSK tone signaling and 9600 bps K9NG and G3RUH compatible direct frequency modulation. True DCD state machine, hardware HDLC, modem disconnect header, Gateway firmware. Identifies TCP/IP, NET/ROM, and The Net stations. The Net X1J3 option available, so the PK-96 can be a 1200 or 9600 bps component in a The Net system. Comes standard with 32K RAM (18K Mailbox), expandable to 128K RAM (100K). Full MailDrop facilities. Automatically receive and reverse forward messages. Comes standard with APRS™ Software. Comes standard with PC PakRatt Lite software, the packet-only, DOS control program. The PK-96 is compatible with PC PakRatt for Windows 2.0 and Log Windows 2.0. Great commands: EXPERT disable for beginners, KISS, PERSISTENCE, SLOTTIME, and CFROM/DFROM to select who may or may not connect. External TX adjustments for 1200 & 9600 bps, external RX audio. Limited one year warranty.



## PK-12 1200 bps Packet TNC

**\$129.00**

Suggested List Price  
Call for Quotes

Software  
Included

The PK-12 is AEA's low cost, 1200 bps, VHF/UHF, packet TNC. Global Positioning System firmware lets you transmit and receive position information with APRS™ Software (included). Use as a stand alone tracking device. The GPS firmware is GPS, Loran, ARNAV, and ULTIMETER II compatible. An optional APRS Adapter Cable saves a COM port on your computer. Gateway firmware lets the PK-12 work as a node for faster throughput. The PK-12 comes standard with 32K RAM (15K Mailbox) and is easily expandable to 128K RAM (100K). It includes AEA's HOST mode, an EXPERT disable command for beginners, and commands that let you choose who connects and digipeats through the TNC. Identifies TCP/IP, Net/ROM, and The Net stations. Comes standard with PC PakRatt Lite, the packet-only, DOS control program. For more control, the PK-12 is compatible with PC PakRatt for Windows 2.0. The PK-12 is perfect for base station use and full of features for mobile use—it's small, it's light, it can run on a 9-volt battery, and it has GPS-specific commands—the ultimate mobile feature. Limited one year warranty. Optional APRS Adapter Cable—HRO Price \$30.00

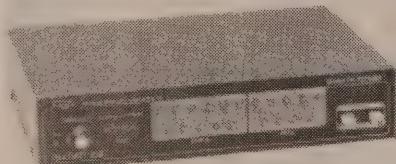
## PK-900 Dual Port Multi-Mode Data Controller

**\$499.00**

Suggested List Price—Call for Quotes



The best non-DSP multi-mode controller available. The PK-900 has all the modes and features as the PK-232, plus much more! Features dual simultaneous ports-Gateway from packet to AMTOR, packet to PACTOR, and packet to packet, even Gateway as a node. Allows Packet users connecting to Port 2 to monitor and link to other AMTOR, PACTOR and even packet stations using an HF radio on Port 1. Superior HF performance with the 8-pole Chebyshev bandpass filter. Memory ARQ for reduced errors. Large, easy-to-read LCD panel keeps you informed of all activity. TAPR disconnect modem header. Low-cost 9600 bps and gray scale/false color fax options available. Compatible with PC PakRatt for Windows 2.0. External AFSK adjustments for each radio port. Cables and connectors included. 12 VDC required. Limited one year warranty.



## PK-232MBX Multi-Mode Data Controller

**\$319.00**

Suggested List Price  
Call for Quotes

This popular multi-mode features an RS-232 compatible controller for Packet (45 to 1200 bps and optional 2400 bps), AMTOR/SITOR, PACTOR, Baudot, ASCII RTTY, ARQ and FEC, Morse Code, WeFax, and Gateway. It receives NAVTEX / AMTEX and TDM. Two radio ports can be switched from buttons on the front panel. DCD threshold control on front panel. Includes Gateway as a node. Superior filter design (17-pole effective filtering) provides better HF performance; built-in 18K personal MailDrop with auto forwarding and reverse forwarding of messages; SIAM for automatic RTTY signal identification, KISS mode for TCP/IP compatibility; & HOST mode. Hardware HDLC & modem disconnect header. 21 front panel LEDs, external AFSK adjustment, scope out & CW key out jack. Cables included. 12 VDC required. Limited one year warranty.

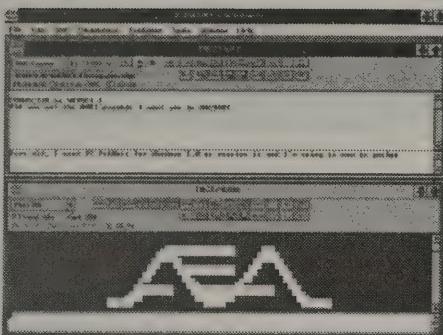
## PCB-88 PC Plug-in 1200 bps TNC

**\$179.00**

Suggested List Price - Call for Quotes

The PCB-88 is a full-featured, 1200 bps, IBM compatible, HF/VHF, packet controller. Plugs into an 8 or 16-bit expansion slot in your XT, AT or compatible PC. Has standard AEA TNC features, plus: true DCD, modem disconnect header, AEA HOST mode, KISS command, 18K Mailbox, full Mailbox facilities, node features, and selective connecting & digipeating. MailDrop works even when computer is off. PC PakRatt-88 software included. Power supply included. Limited one year warranty.

# SOFTWARE



## PC PakRatt

for

## Windows 2.0

\$119.00

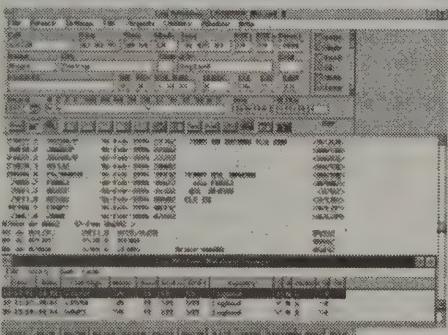
HRO Price

PC PakRatt for Windows is a true Windows application, letting you run other programs while controlling your data controller. Other Windows functions include cut and paste from other applications, "point and click" access, selectable screen fonts, and on-screen status. PC PakRatt for Windows can run minimized or in the background, if desired. Separate Window for Mailbox operation and QSO logging.

PC PakRatt for Windows is now full compatible with the new Log Windows 2.0 — you can run both programs simultaneously and get the best of both the TNC control and logging worlds. Features the ability to send, receive, and display ANSI graphics for PACTOR.

Works with all AEA data controllers. PC PakRatt for Windows 2.0 even supports dual-, tri-, and quad-port operation with two full-featured AEA data controllers. Imagine working an AMTOR DX station through your PK-232MBX, receiving information from a local Packet Cluster net on your PK-900's port 2, and working PACTOR on port 1 of the PK-900, all at the same time!

Requires Windows 3.1 and 4 Mb of free hard disk space. Also requires August 1991 Firmware or better for use with the PK-232MBX. Limited one year warranty.



## Log Windows 2.0

\$119.00

HRO Price

Log Windows 2.0 was designed to automatically display DX spots and allows the user to move to the designated frequency quickly, log the contact, and then save the information. This program combines the functions of logging, rig control, antenna rotator control, and DX Cluster monitoring, with award tracking and reporting.

Features include: a "Browser" function allows you to view entries by any criteria; a synthesized voice announcement of DX spots; antenna rotator control capability; the ability to filter spots by band, mode and country; a QSL manager list; the ability to look-up any name and address in your database at anytime; and PC PakRatt for Windows 2.0 compatibility.

Import data from major logging programs such as CT, Easy-DX, Hyperlog, DXLog, Log View, DX Desktop, PC PakRatt, N6RJ 2nd Op, LogMaster, and DXBase. Incorporates comprehensive database for storage of QSO information. Interfaces to SAM and Buckmaster on-line callbooks for automatic display of name and QTH when a call sign is entered. Award types include ARRL DXCC, WAS, VUCC, and CQ magazine's CQ Zone and US-CA awards. Report types include: Summary, Full report, Countries/states/zones worked, Countries/states/zones needed, QSLs sent, QSLs needed, and Award tag types (not tagged duplicates). Requires Windows 3.1, 4 Mb of RAM, VGA display. Limited one year warranty.

## AEA Software — Power & Value



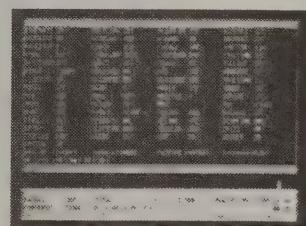
## AEA FAX III

\$99.00 HRO Price

AEA FAX III is a multi-shade, gray scale fax receiving system with color enhancement for your PC-compatible computer. The hardware (demodulator included) and DOS software allow you to receive and display facsimile and wire photo images. Allows 16 gray levels and 256-color enhancement. The 256-color enhancement helps you decipher more information from your images. Save your images as .PCX or .GIF files and use them in other computer programs. AEA FAX III is easy to use right out of the box. Simply plug in the demodulator, install the software, and you're ready to receive highly detailed images.

Virtual control modules enable your computer to drive computer controllable receivers, allowing frequency switching of the receiver for unattended captures of complex schedules. This feature coupled with the fax station database (included) makes unattended captures a snap. Choose stations from the database, put them in a schedule, and go do something else. When you return, AEA FAX III will have captured the transmissions you need.

Also decodes CW, RTTY, and NAVTEX. "Daisy-chain" RS-232 input so your TNC, modem, and other devices can be used on the same COM port. Features "slide-show" mode; tuning scope visible even when receiving an image on screen; auto-save ability; 5-1/4" and 3-1/2" disks included; shielded audio cable. Supports VGA, CGA, and EGA. VGA recommended for colors and detailed grays. Limited one year warranty.



## PC PakRatt II

\$64.00 HRO Price

IBM-compatible terminal control program for the PK-232; menu-driven; works with or without a mouse. You get Host Mode support for the latest PK-232 command set; built-in QSO logging facility; fast-installation cuts start-up time down to a few seconds; disk and printer access for all PK-232 functions including PACTOR; SIAM screen for quick and easy signal identification; DOS gateway; supports COM 1-4.

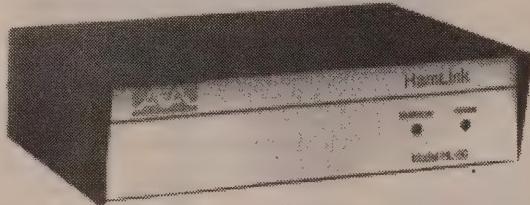
Includes latest version of the PK-FAX program to display received facsimile images on screen, save to disk and more. Can run PK-FAX without leaving the program. Command line switches allow you to change baud rate, COM port, mode, etc. easily. Complete parameter screens. Context sensitive help. Limited one year warranty.

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.



## Ham Station Remote Control

Operate your ham station from just about anywhere. HamLink and RadioLink allow you to change bands, frequency, and modes. Just in case you lose track of your frequency or mode, we've included a voice synthesizer to remind you. Plug-in cables make set-up a snap. Both units have outputs for controlling other accessories. Private access code secures your station from others.

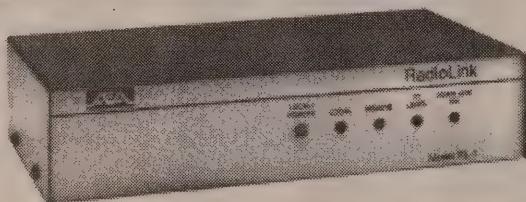


**HamLink**

Controls your ham station using a touch-tone telephone. Change bands and frequency, tune up or down, switch modes (AM/SSB/FM/CW), scan, run split VFO, or virtually any other radio feature from anywhere you can find a touch-tone phone. HamLink hooks into your existing telephone line so there is no need for a second phone line. HamLink functions perfectly even if you have an answering machine connected to the same phone line. HRO Price \$249.00

### OpLink

Used with HamLink, lets users connect a headset or headset/boom microphone to avoid using a telephone for on-air use; also accepts CW key or keyer for fast CW. HRO Price \$129.95



**Radio Link**

Use your handheld or mobile radio to access your HF station. RadioLink goes between your HF/VHF/UHF transceiver and a repeater or a 220 MHz or UHF full duplex link. You can then operate your station from a handheld or mobile radio. RadioLink allows you to set your transceiver on a specific frequency, tune to a frequency, set mode, access memories and scan. Standard cable is provided for you to directly plug into most VHF/UHF radios with an 8-pin microphone connector. HRO Price \$299.00

## More AEA Software

### WeFax 256

Windows WeFax program for the DSP 2232/1232 displays in real time, true gray scale images from the NOAA HF WeFax service or the NOAA APT satellite service. Includes a complete image processor to colorize (256 colors) and enhance received images. Suggested List \$129.00. Call for quote.

### MacRatt with Fax

Version 2.1 for Macintosh computers. Makes using AEA's data controllers as easy as clicking the mouse! Supports PK-232MBX and PK-88. System 7 compatible. HRO price \$64.00

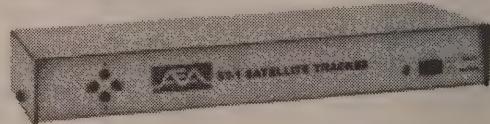
### COM-Ratt with Fax

A Commodore C64 and C128 compatible program for the PK-232MBX and PK-88. Includes COMFax for on-screen display of Weather Fax. HRO price \$74.95



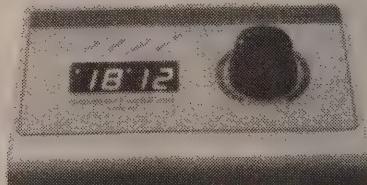
**DM-1 Deviation Meter**

The DM-1 deviation meter measures the deviation of FM transmitters operating the 144, 220, or 440 MHz amateur bands. Tuning is crystal controlled eliminating the need for manual tuning. Two deviation ranges allow accurate measurement of voice, data, DTMF, and subaudible deviation. Comes with ten segment LED bar display. Includes an output for an external digital or analog meters, and an audio output. The DM-1 is small, weighs less than a pound, and is battery powered. It can be stored almost anywhere until needed or it can be left in line. Perfect for 9600 bps packet users. Suggested List \$169.00. Call for quote.



**ST-1 Satellite Tracker**

The ST-1 Satellite Tracker provides hardware and software for automatic satellite tracking and automatic transceiver tuning. Connects to a PC computer, a computer compatible transceiver, and antenna rotors. Automatically controls Yaesu 5400/5600 Azimuth-Elevation rotors and other rotors as well. Compatible with InstantTrack, QuikTrack, and RealTrak software. Provides initial tuning and correction for the Doppler shift throughout the pass. Allows unattended operation on Packet satellites. Compact size. Stand-alone unit won't use your valuable computer expansion slots. Uses one serial port & one parallel port—pass through technology allows ports to be used when the ST-1 is turned off. Suggested List \$399.00. Call for quote.



**KK-1 Keyboard Keypers**

Turns any standard PC-compatible 101-keyboard into a feature packed Morse Machine (no computer needed). Practice for upgrading your license with Farnsworth code practice, even select random groups of words (over 700) in different lengths and speeds. This is the only electronic keyer that can send on-air Farnsworth spacing. Includes built-in iambic keyer, battery-backed memory, message repeat, and nestable message buffers. Speed selectable from keyboard or front panel knob. All operations are monitored on a large, four-digit LED display with mode indicators. Nineteen weight settings allow you to compensate for transmitter key characteristics & give you a distinctive "fist." HRO Price \$189.00

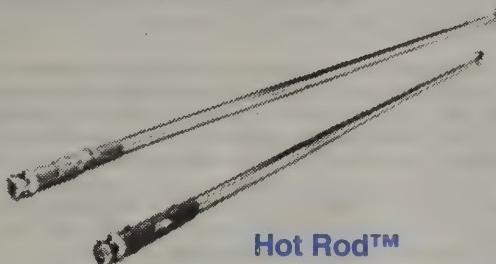
### KKCOM Software for the KK-1

This DOS editing and control accessory for the KK-1 lets you compose and edit buffer contents right on the computer. Speed, sidetone pitch, serial number, and paddle sense can also be shown and edited from KKCOM. Save KK-1 messages, parameters, and buffers to a disk and reload later. Have different buffers for Field Day or for contesting—just load them in when needed. Includes computer software & serial interface. HRO Price \$49.00

# ACCESSORIES & ANTENNAS

## IsoPole™ VHF / UHF Antennas

Three models are available: 144 MHz (pictured left), 220 MHz, and 440 MHz. These antennas provide the maximum gain possible for their respective lengths. Zero degree angle of radiation gives maximum range. Exceptional decoupling results in simple tuning and significant reduction in TVI potential. Broad frequency coverage. Typical SWR less than 1.4 to 1 or better across the entire band. Mast not included. 144 \$59.95; 220 \$59.95; 440 \$89.95



## Hot Rod™ Handheld Antennas

AEA'S high performance hand-held antennas are available in two models: HR- 1 for 144 MHz and HR- 2 for 220 MHz. These models provide maximum gain and extended range—higher gain than any 5/8 wave telescopic antenna for hand-holds for their respective bands.

HR-1 \$19.95; HR-2 \$19.95

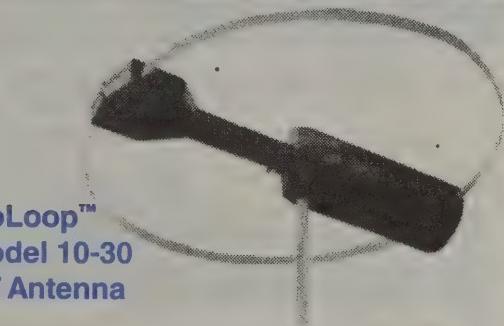
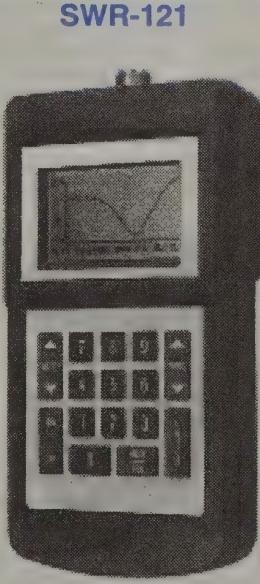
## Antenna Analyst

The SWR-121 handheld Antenna Analyst provides comprehensive antenna performance information in an easy-to-read graphic format. The SWR-121 has an LCD spectrum display which plots an SWR curve for any HF, VHF or UHF antenna.

Also displays a return / loss measurement for the coax on the LCD readout. Frequency coverage of the SWR-121 is 1 to 32 MHz. SWR-121 V/U 120-175 MHz, 220-225 MHz and 400-475 MHz with an SWR range of 1.1 to 10.1. The SWR-121 can be powered by AA batteries or with 12-16 VDC (not supplied). HRO Price SWR-121 \$349.95, SWR-121 V/U \$399.95

## AACOM Software for the SWR-121

An innovative feature in the SWR-121 Antenna Analyst is the ability to link to a computer with the optional AACOM software. You can download an SWR plot stored in the Antenna Analyst to your PC for future reference or comparison. HRO Price \$75.95



## IsoLoop™ Model 10-30 HF Antenna

AEA's compact antenna covers 10-30 MHz continuous (including 12, 15 and 17 meters). It is ideal for apartments, condominiums, RVs, and portable use. Also great for the ham who wants to avoid the hassles of a high-priced high-gain yagi and tower guy wire, turnbuckles, insulators, concrete, guy stays, rotators, construction permits, etc.

The IsoLoop is isolated from the feedline to keep stray RF to a minimum. Narrow bandwidth reduces TVI potential and attenuates out-of-band signals. The antenna handles up to 150 watts. It weighs only 17 lbs and can mount in an attic or on an apartment balcony. The LC-2 controller of the IsoLoop 10-30, power supply and 50 feet of control cable supplied.

Tuning is accomplished with the small LC-2 remote control box (supplied) which sits in the ham shack (50 ft motor cable also supplied). The IsoLoop has an omnidirectional radiation pattern when mounted in the horizontal plane. Vertical mounting provides a null in a desired direction. Maximum radiation is always at lower angles than a dipole at the same elevation. List Price \$389.95

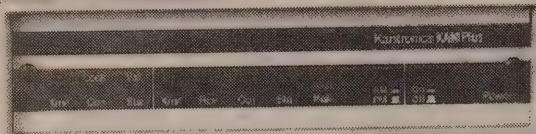


## IT-1 IsoLoop 10-30 Auto Tuner

The AEA IT-1 is an optional automatic tuner for the IsoLoop 10-30. Ten segment LED bar monitors tuning process and indicates selected memory number. Twelve-button keypad with audible beep announces completion of the tuning process (1-5 seconds typical tuning time). Thumbwheel knob for manual control. Serial interface for remote control. Tunes for maximum noise or minimum noise. HRO Price \$249.95

# Kantronics

KAM Plus



Modes: VHF / HF Packet, RTTY / ASCII, AMTOR (476 & 625), CW, NAVTEX, Host Mode, Kiss Mode (TCP / IP), Gateway, Weather Facsimile (WEFAX), KA-NODE, PBBS (personal packet bulletin board), REMOTE Access, PACTOR on HF and G-TOR on HF.

PBBS can be accessed on Packet, Pactor or AMTOR Mode A (ARQ). PBBS supports Bulletin ID's, forwarding and reverse forwarding, NTS traffic, personal and bulletin messages.

Simultaneous operation of HF and VHF packet. KA-Node and PBBS are available while you use other HF modes. With Host Master II allows simultaneous 1200 baud packet on VHF & any HF mode: RTTY, ASCII, AMTOR, CW, NAVTEX, PACKET, Pactor or G-TOR.

Remote access (password protected) to all commands in the TNC from a second station. Full SYSOP access to the PBBS available from a remote station in packet mode.

Selectable CW bandwidth & center frequency.

Preprogrammed 170, 425, and 850 Hz shifts, plus user definable shift (mark and space tones).

Automatic generation of unique 7 character (CCIR 625) serial of your amateur call sign. Copy the ARRL bulletins using NAVTEX mode to prevent duplicates.

Wide bar graph tuning indicator makes tuning HF signals easy. Reliable, fast-acting AGC eliminates the need for a manual threshold adjustment.

## Software

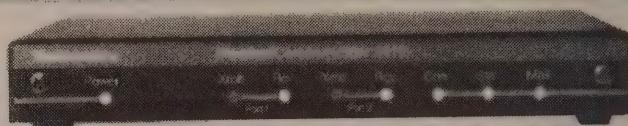
### Host Master II+ for Macintosh or IBM

The Host Master terminal program provides a great way to carry on a packet conversation (or several conversations), monitor what else is happening on the channel, and keep everything separate. Plus, with the KAM, work any HF mode (except WEFAX) at the same time.

The Monitor Window displays all incoming packets allowed by the TNC monitor commands. The Packet Receive Window area is actually many windows on top of each other, one for each stream, and a command window. Use PgUp and PgDn keys to go to the next channel (window) or use ESC for the command window.

The XmitEcho Window shows characters as they are transmitted by an HF mode. What you receive from a mode other than packet displays in the Non-Packet Receive Window. The Transmit Window displays what you type on the keyboard and has many windows to coincide with the receive windows. Receive and transmit windows keep your conversations separate and will capture each to its own disk file.

Host Master requires Kantronics Host Mode. Simultaneous multi-mode support for the KAM requires firmware version 5.0.



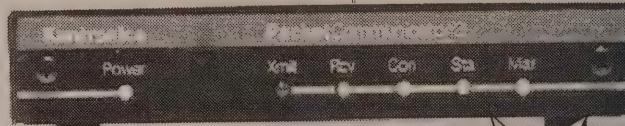
### KPC-9612 Dual-Speed, Dual-Port TNC

The FCC-certified KPC-9612 is a true dual-speed dual-port TNC capable of 9600 and 1200 baud QSOs at the same time, even if cabled to only one radio. It will function as both a network node and a TNC at the same time. For its small size and low power requirements, this is an amazingly full-featured packet TNC ideal for both the new and experienced user.

With one radio connected to the 9600 baud port and another to the 1200 baud port, KPC-9612 users can simultaneously transmit and receive at both rates. With both ports connected to one radio, the KPC-9612 automatically detects the speed of the incoming signal and transmits at 9600 or 1200 baud. No hardware changes are required to switch speeds, regardless of configuration.

The KPC-9612 is available with either 32K or 128K RAM and can be expanded to 512K. The full-featured PBBS includes forwarding and reverse forwarding to a BBS, remote sysop access and mail waiting LED.

A 9600-ready radio is required for 9600 baud operation.



### KPC-3 VHF / UHF TNC



The KPC-3 is a small-sized, low-power packet TNC designed for the new user. The simplified command set allows you to start quickly, and then switch to the full Kantronics command set when you are ready. The KPC-3 now supports GPS. Operating on 6-25 volts DC, requiring less than 40 millamps, this unit is perfect for portable or other low-power applications. The KPC-3 comes standard with 32K RAM, but can be expanded to either 128k or 512k bytes. It supports WEFAX with an optional special program.

Updated eprom in the KPC-3. Version 6.0 now features an enhanced mailbox and expanded KA-Node capability.

## High Speed Data Radio

### D4-10

The D4-10 is a high-speed, wide bandwidth, medium power UHF (70cm) FM transceiver. Coupled with the Kantronics Data Engine and DE 19K2/9K6 modem, this radio provides high speed packet operation in an off-the-shelf, no-tweaking system. Rated for 10 watts output, this radio features a double helical front-end for excellent IMD and image rejection—perfect for your high-speed backbone node or home station.

Unusual features of the D4-10 are its two bandwidth modes: 25 kHz for operation up to 9600 baud and 60 kHz for 19.2 kbaud. Very fast T/R switching and direct access to the discriminator output and varicap modulator make this the choice for fast packet. The D4-10's built-in data slicer provides TTL level signals to your TNC on receive. Its built-in pulse shaping allows direct TTL drive as featured in the DE19K2 modem.

The rear panel features the TTL input for 19.2 kbaud operation. It has an analog input for use with standard analog modems like the DE1200, DE2400 or the G3RUE 9600 baud modem. Factory tuned for 435.55 MHz, this radio is can operate through the entire 420-450 MHz amateur band. 2nd channel available at additional cost.

## Data Engine High Performance TNC



The Data Engine is a dual-port packet Terminal Node Controller (TNC) with each port capable of speeds greater than 56kB (depending on the modem installed). As shipped from the factory Port 1 has a 1200 baud modem (DE1200) installed and Port 2 is open for whatever you desire: DE19K2/9K6, PSK satellite modem, G3RUH 9600 baud modem, TexNet modem, another DE1200 modem, or one of your design. Port 1 can also be used for any of these modems. Configure your Data Engine to your needs.

The Data Engine is based on a V40 processor with a 10 MHz clock, and uses an 85C30 SCC for hardware HDLC. The EPROM and RAM sockets allow up to 1/2 Megabyte of firmware and 1/2 Megabyte of RAM. Eight V40 controlled front panel LEDs and two dead front windows make this an ideal platform for the experimenter. The open architecture allows development to meet future packet needs, aided by the optional Firmware Developer's manual and optional Modem Developer's manual.

Standard firmware includes end-user AX.25, Kantronics Host Mode, KISS mode, BBS mode, PBBS and Gateway. Obtain the G8BPQ Packet Switch code and turn your Data Engine into a multi-port network node. Kantronics Data Engine is compatible with today's packet and designed for the development of future applications.

### DE 19K2 / 9K6 Internal Modem

The DE 19K2 / 9K6 modem is capable of either 19200 baud or 9600 baud (G3RUH compatible) operation. Configured for 9600 baud from the factory, this modem is fully compatible with the popular G3RUH modem, using independent transmit and receive scramblers for full duplex capability.

Select 19200 baud operation for use with the Kantronics D4-10 radio by moving four jumpers. This mode uses the same 17 bit LFSR scrambler and provides direct TTL output to the D4-10 radio for plug-n-go 19200 baud packet.

### DE1200 Internal Modem

The DE1200 modem is a standard 1200 baud packet modem that has three keyboard selectable carrier detection schemes: sine-wave, energy, and external. When sine-wave is selected, carrier is detected by the presence of audio sine waves (packet tones). Selection of energy defines the carrier detect as any received signal and external will rely on the carrier detect of your transceiver. This modem also has jumpers for output level, equalization, watch dog timer and interfacing to hand-held radios.

### DE Jumper Board

For ease of use with other manufacturer's modems, the DE jumper board installs on the modem disconnect headers of the Data Engine and provides the signals required by most external modems to the rear panel DB-15 connector. TxD, RxD, RTxC, DCD, TOUT2 and GND are always present. TRxC CTS and DTR are jumper selectable. The on-board PTT circuit and watch dog timer may be disabled by on-board jumpers.

### KTU with Weathernode

"Just Connect for the Weather" with the Kantronics Telemetry Unit (KTU) with Weathernode EPROM. Weather sensors attach to the KTU, and the KTU attaches to any brand TNC. Then anyone can connect and request weather statistics, via packet.

The KTU with Weathernode comes with a temperature sensor and will accept up to 7 sensor inputs. An optional anemometer is available which will provide wind speed and wind direction information. For those interested in weather watch programs, this is the ideal application for that unused serial port on your local area digipeater. Just add a Weathernode to each site, and you can gather current conditions around the area.

The Weathernode also stores data, so histories of past readings are available, allowing you to plot trends over time on your computer.

## VHF/UHF Amps



### GaAs-Fet Receiver Preamps

Most rf concepts amplifiers feature automatic keying, thermal protection, VSWR shutdown, GaAs-Fet preamps and flow soldered assembly. All solid-state. Made in U.S.A.

**Call for HRO's Discount Prices**

### Dual Band 2m / 440MHz

RFC 2/70G (with preamp)

RFC 2/70 (no preamp)

143-149, 5 W in = 30 out

430-450, 5 W in = 20 out

RFC 2/70H

2 meter, 20 W in = 200 out

440 MHz, 20 W in = 125 out

### 144-148 MHz 2 meters

RFC 2-23, 2 W in = 30 out

RFC 2-315, 40 W in = 170 out

RFC 2-417, 45 W in = 170 out

VHF 1-60, 5 W in = 60 out

\*MINI-AMP 144 2W in=30 out

### 220-225 MHz

RFC 3-22, 2 W in = 20 out

RFC 3-211, 2 W in = 110 out

RFC 3-112, 10 W in = 120 out

RFC 3-312, 30 W in = 120 out

### 430-450 MHz

ATV compatible

RFC 4-32, 3 W in = 20 out

RFC 4-110, 10 W in = 100 out

RFC 4-310, 30 W in = 100 out

\*MINI-AMP 440 3W in=20 out

\* "P" Model with preamp

### Kantronics Prices

Model	Suggested List
<b>Data Engine (1 Modem)</b>	\$389.95
<b>DE 19K2/9K6</b>	\$109.95
<b>DE 1200</b>	\$79.95
<b>DE Jumper Board</b>	\$21.95
<b>D4-10</b>	\$369.95
<b>Enhancement Board</b>	\$89.95
<b>KTU w/ WX Node</b>	\$249.95
<b>KAM Plus</b>	\$339.95
<b>Host Master II+ (PC)</b>	\$69.95
<b>Host Master II+ (MAC)</b>	\$69.95
<b>KPC-3 w/ 32K RAM</b>	\$119.95

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

# BOOKSHELF

## ARRL

### ARRL TECHNICAL BOOKS

AIM	Antenna Impedance Matching
DB	Data Book
DN	W1FB Design Notebook
FSIR	First Steps in Radio
HK	Hints and Kinks
ITRFD	Intro to Radio Freq. Design
LBD	Low Band DXing
MEM	Microwave Experimenter Manual
NAN	Novice Antenna Notebook
OM	Operating Manual
PDOYA	Yagi Design
QRP	QRP Classics
RADIODESIGN	Radio Design IBM Software
REFLECTIONS	SWR Theory
RFI	Radio Frequency Interference
RSGB-AWARDS	Awards Book
RSGB-OP MAN	Amateur Radio Operating Manual
RSGB-RCH	Radio Communication Handbook
RSGB-VHF	VHF / UHF Handbook
SA	Satellite Anthology
SEH	Satellite Experimenters Handbook
SSD	Solid State Design
SSS	Spread Spectrum Source Book
TFRB	The FCC Rule Book
TLT	Transmission Line Transformers
TRAH	ARRL Hardcover Handbook
OARS	Operating an Amateur Radio Station
WSH	Weather Satellite Handbook

### ARRL READING

CQGS	CQ Ghost Ship
DVQTH	Death Valley QTH
DXBD	DX Brings Danger
DXCC COMPANION	DX Guidebook
FSTS	From Spark to Space
GCC	Grand Canyon QSO Book
GIL	Cartoon Book
HFNH	Help for New Hams
MBQ	Murder by QRM
MORSE CODE	The Essential Language
NCJ	Bi-Monthly National Contest Magazine
NS	Night Signals
NN	Novice Notes
ORP NOTE	QRP Notebook
QST	Monthly Magazine of ARRL
RADIOGRAM	Radiogram Message Forms
SOSAM	SOS at Midnight
YVC	Your VHF Companion
FIREWATCH	Firewatch Novel
ET	Easy Target Novel

### ARRL PACKET BOOKS

GTPR	Gateway to Packet Radio
PSMSA	Packet Speed, More Speed & Apps

## Magazines

73	73 Monthly Magazine
Antenna	Antenna Buyers Guide
CQ	CQ Monthly Magazine
BG	Equipment Buyers Guide
Popular	Popular Communications
QST	QST Monthly Magazine
MT	Monitoring Times
WRN	World Radio News

## Scanner Books

HRO stocks many books that contain scanner frequencies for localities around the country. Contact your nearest HRO store for details.

## ARRL LICENSE PREPARATION

10-15ARRL	10-15 WPM Code Tape
13-14ARRL	13-14 WPM Code Tape
15-22ARRL	15-22 WPM Code Tape
5-10 ARRL	5-10 WPM Code Tape
GENVIDEO/SOFT	Gen Class Video/IBM Exam
TECHVIDEO/SOFT	Tech Class Video/IBM Exam
NYT II	Study Guide for the No-Code Technician License
LM-TECHNICIAN	Technician Class Manual
LM-GEN-II	General Class Manual
LM-ADVANCED	Advanced Class Manual
LM-EXTRA	Extra Class Manual
TFRB	FCC Rule Book
YITMC	Introduction to Morse Code

## ARRL ANTENNA BOOKS

AB	Antenna Book
AC	Antenna Compendium
ACVOL4	Antenna Compendium Vol. 4
AN	W1FB Antenna Notebook
NAN	Novice Antenna Notebook
RSGB-ANT	H.F. Antenna Book
RSGB-WIRE	Wire Antennas
YAD	Yagi Antenna Design

## ARRL LISTINGS

DXCC LIST	Official ARRL DXCC List
LB	Log Book
ND	Net Directory
RD	Repeater Directory

## ARRL MAPS

GRID ATLAS	Grid Locator Atlas
GRID MAP	Grid Locator Map
USCAM	U.S. Call Area Map
WM	World Map

## CRB

ROUSGRF Registry of Government Freq's

## SWL

1487	SWL Antenna Handbook
MT	Monitoring Times Monthly
PASSPORT	Passport to World Radio
WRTVH	World Radio TV Handbook

## UNIVERSAL

RTTY CALL	RTTY Call Signs
RTTY TODAY	Complete Guide to Amateur RTTY
SFFG	SW Facsimile Freq Guide
WPSF	World Press Services Frequency Book

## ARTSCI

ALPHA&ZULU	Ride the Airwave w/Alpha & Zulu
AMAT HB	Amateur Handbook
FA	Federal Frequency Book
LUM	Lost Users Manual
NASFG	Shortwave Guide
RTM	Guide to Radio Mods
RA	Radio Atlas
USRG	US Repeater Guide

## RADIO PUBLICATIONS

ANTENNA HB	Antenna Handbook
BEAM	Beam Antenna Handbook
INTERFERENCE	Interference Handbook
QUAD	All About Cubical Quads
SHORTWAVE	Better Shortwave Reception
VERTICAL	All About Vertical Antennas
VHF	All About VHF Amateur Radio
WIRE	Low-Cost Wire Antennas
COMPLETE DX	Complete DX'er by W9KNI

## CQ Books / Publications

1995ALMANAC	CQ 1995 Ham Radio Almanac
ARC1995	Amateur Radio Calendar 1995
BAUBAU	Building & Using Baluns and Ununs
BB-95	1995 Equipment Buyers Guide
LMOA	Lew McCoy on Antennas
QUADANTENNAS	Quad Antennas
RCC1995	Radio Classes Calendar 1995
TPROM	The Packet Radio Ops Manual

## CALLBOOK

USCB	North American Callbook
DXCB	International Callbook
SUPPLEMENT	Callbook Supplement-US & DX

## QRZ! Ham Radio CD-ROM

QRZ! Ham Radio's CR-ROM for DOS and Windows is the perfect information source for Hams and SW listeners. For details see page 53.

## Study Aids

### AMECO

100-T	Junior Code Tape
101-T	Senior Code Tape
102-01	Amateur Radio Theory Course
103-T	Advanced Code Tape
104-T	Extra Class Code Tape
105-QT	General Class QSO Course Tape
105-QT	Extra Class QSO Course Tape
12-01	General Class Test Manual
17-01	Extra Class Test Manual
26-01	Advanced FCC Test Manual
27-01	Novice FCC Test Manual
28-01	Technician Class Test Manual
EN-1	Novice Class Exam
78-01	Codeless Technician Manual

## GORDON WEST / W5YI

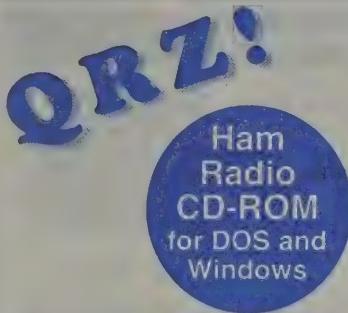
ADV	Advanced Manual by Gordon West
ARLB	Amat. Radio Log Book
GROL	Commercial Gen. Radiotel. LM
GWEM	Extra Class Study Manual
GWET	Extra Class Code Tapes (2)
GWGM	General Class Study Manual
GWGT	General Class Code Tapes (2)
GWNT	Novice Code Tapes (2)
GWNW	Novice Class Theory Tapes (2)
GWTW	Tech Theory Tapes (2)
MCHB	Mob. Comm. Handbook (G West)
WSYI-HO	Study Course, all Licenses (PC)
GW0064	Ground Foil 25'
GW0065	Ground Foil 50'
NNCPLUS	New no-code plus study guide

## KB6MT

CODE	Novice to 21 WPM Code Training Tapes
IT	Instant Theory Tape
IT-NCTECH	Instant Theory No Code Tech
IT-NOVICE	Instant Theory Novice
IT-TECH	Instant Theory Tech
IT-GEN	Instant Theory General
IT-ADV	Instant Theory Advanced
IT-EXTRA	Instant Theory Extra
WORDS	Code word course

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

# COMPUTER STUFF & BOOKS



Ham radio and short wave enthusiasts will be pleased that QRZ now supports Windows 3.1.

Of particular interest is the new QRZWIN call sign search-and-retrieval software that allows easy access to more than 600,000 names and addresses of US and Canadian hams. The full name, address and FCC license information is included with each record.

QRZWIN provides editing and printing functions which make custom mailing lists easy. Import the information to your favorite word processor for advanced formatting and list processing. It features an open database with documentation so users can create their own custom applications.

Several ham radio logbook utilities support the QRZ database. DOS routines are included for non-Windows users.

Also included on the CD-ROM are the complete text to the FCC approved license examinations, questions and answers, current rules and regulations, and 100's of shareware utilities. HRO Price \$29.95

## Computer Interface

### KENWOOD

#### IF-232C

\$124.95

Suggested List Price

Use your personal computer to control Kenwood radios. The interface in combination with its companion "Level Translator" will convert the instructions from computer to a format that the transceiver can recognize.

To use the IF-232C with Kenwood's TS-50S or TS-60S, a computer interface chip set must be installed in the radio. Order Chip Set IF-10D along with the IF-232C.

The IF-232C works directly with the following radios: TS-450S, TS-690S, TS-790A, TS-850S and TS-950S. No chip set is needed.

## License Studies



### MacHam Radio™ Study Guides

Study for the Amateur Licenses with the aid of your Apple® Mac® Computer. Material is from the latest FCC question pools. Includes diagrams on screen and is EVERYTHING you need to pass your exams! Test on screen or printed!

**Morse Code Training:** Vary speed from 1 to 30 WPM. Set FARNSWORTH spacing and Tone. Unlimited RANDOM WORDS and QSO's. Has many more great features!

You will be VERY impressed with these programs.



NO-CODE TECHNICIAN \$39.95

GENERAL, ADVANCED and EXTRA  
Each Version Just \$34.95

MacHam Morse™ Price \$39.95

## Morse Software

### GGTE

#### Morse Tutor

The GGTE Morse Tutor comes in two models, standard and advanced. The software is for the IBM PC/XT/AT and compatibles.

The eleven lessons use a flash card technique to teach you Morse code. Each session can be set up to teach only the specific lesson, a random character drill or a random word drill using only those characters learned through the current lesson. The last lesson is a random QSO generator based on a large information pool. This lesson is similar to code exams.

The program does standard CW spacing or the Farnsworth method. It is menu driven. Specify 3.5" or 5.25" disks.

The advanced version includes all the features of the standard plus the ability to enter your own text from the keyboard or imported ASCII files. Also shown is the character tally. HRO Price \$29.95

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.



## Technical

### Radio / Tech Modifications & Alignment Controls

Easy to follow instructions (with detailed drawings) to enhance almost all brands of amateur HT's and mobile radios. Includes extended frequency plans. Volume A (Icom, Kenwood, Scanners), Volume B (Alinco, Standard, Yaesu, Others) HRO Price \$19.95 each

### Lost Users Manuals

Lost the manual to your radio? Bought a used radio with no manual? Lost Users Manual contains operating instructions on most popular VHF & UHF radios: Alinco, Icom, Kenwood, Yaesu, Uniden. HRO Price \$19.95

## Reference

### U.S. Repeater Map Book

The PERFECT traveling companion for the radio enthusiast. Road maps show major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Maps are enhanced to provide greater highway detail. HRO Price \$9.95

### Amateur Hambook

This book is like a mini Amateur library! Contains charts, tables, construction plans for all areas of amateur radio. Never go looking through all your other books again for that piece of information. It's here! HRO Price \$14.95

## License Preparation

### Riding the Airwaves with Alpha & Zulu

Let Alpha & Zulu and other characters teach you and your kids amateur radio. Have great fun studying for the Novice and No-Code Technician tests. 288 pages of cartoons, mini tests and games. HRO Price \$14.95

## Scanner / Frequency

### Federal Assignments

Ever wonder what the federal government agencies are up to? Listen in! This book, third edition, has the secret frequencies used by our government. By far this is the most comprehensive book we know of. HRO Price \$24.95

### Police & Fire Communications Handbook

With the ever changing police frequencies in Southern California, it is about time an accurate and up to date scanner book was available. More than 380 pages of frequencies, inputs & tones. HRO Price \$19.95

## Shortwave

### North American Shortwave Frequency Guide

A comprehensive by frequency list of all HF broadcasts by every country (worldwide) and service that can be heard in North America. HRO Price \$19.95

# HF RADIOS

## Amateur 10M Mobiles

**RANGER**  
Communications, Inc.

Choose from two Ranger 10 meter amateur transceivers. For low power use, the RCI-2950 with 25 watts PEP should be your selection. For those higher power requirements, the RCI-2970 100 watt unit is now available.



**RCI-2950**

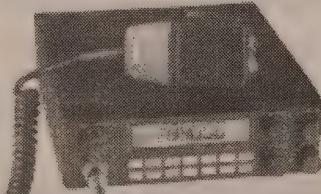
**\$449.95**

Suggested List Price—Call for Quotes

Ranger's RCI-2950 is all you'd expect in a top-of-the-line amateur radio transceiver and more. Built to exacting specifications for reliability, it provides a wealth of features. It has full band coverage and all-mode communications. The ten most used frequencies can be pre-programmed for easy access. This is the perfect radio for 10 meter mobile use.

Specific features include:

- Full band coverage 28.0 - 29.6999 MHz.
- All mode operation (USB, LSB, CW, AM, FM).
- Large, easy-to-read backlit LCD display with four-step LCD brightness control.
- Tuning steps 100Hz; 1, 10, & 100 kHz, 1 MHz.
- CTCSS encoder / decoder (optional).
- Repeater offset switch with standard offsets.
- Built-in dual VFO.
- Noise blanker.
- RIT for fine tuning up to ± 3 kHz.
- Selectable programmable tone.
- Squelch eliminates background noise.
- Transmitter output of 25 W PEP for SSB, 12 w CW and 8 w AM / FM.
- RF gain control and RF power selector.
- Multi-function LCD meter shows transmit power, receive signal strength, modulation, and SWR.
- Receive sensitivity AM 0.5 µV, SSB .15 µV, FM .25µV.



**RCI-2970**

**\$599.95**

Suggested List Price  
Call for Quotes

Ranger's newest 10 meter HF transceiver has similar performance and features to the RCI-2950. It provides 100 watts PEP output for ten meter amateur operations. This will be perfect as the band conditions decline. Dimensions: 15" long, 10" wide and 6.25" high.

## Radio Protectors

### The Pouch

Add protection for your HT with THE POUCH quick-draw holsters. Nylon bonded to black neoprene. Web belt-loop sewn on the back extends over the top and is secured on the front with a velcro tab. All models come with a "bottom-bumper" block of foam, which can be removed by the user in an instant to accommodate bigger batteries. HRO Price \$16.95



**Pouch 50**

For the Kenwood TS-50S  
& others

Zipper Pouch Model 50 for the Kenwood TS-50S can also be used for any VHF/UHF and QRP rig that is less than one foot in length. It includes four pockets for key, wire, and manuals. For convenient carrying, a shoulder strap is included. HRO Price \$40.95

### The Pouch

Manufacturer	Radio Model	Pouch Model	Comments
Alinco	DJ-162T	Short 1	With the exception of P5 all come with an easily removed "bumper" in the bottom to accomodate a larger battery.
	DJ-180T	Short 1	
	DJ-F1T/G1T	Short 1	
	DJ-560	470	
	DJ-580T	Short 2	
Icom	IC-2GXAT	Short 1	
	IC-21A/4iA	P5	
	IC-2SAT/P2AT	P5	
		SS	
	IC-T21/V21	Short 2	
	IC-24AT	Slim 7"	for standard battery
		Slim-X	
Kenwood	IC-W2A/2SRA	Short 2	for extended life batteries
		Slim 2	
	W21AT	Short 2	
	TH-22/42A	SS	
		Short 2	
Standard	TH-27/45A	SS	for 3 watt battery
		Short 2	
	TH28/48A	Short 1	
	TH-78A	Short 2	
	TH79A	SS	Super Small
Yaesu	TH-215/225A	G	Generic 8"
	C168A/468A	Short 1	for 5 watt battery
	C*88A	Short 2	
	C*28A	Short 2	
	C558A	Short 2	
	FT-11R/41R	P5	form fit (no bumper)
	FT-51R	SS	
	FT-415	SS	
	FT-416	SS	
	FT-470	470	
	FT-530	Short 2	

### Attention Internet Users

Look for Ham Radio Outlet on the World-Wide Web.

Ham Radio Outlet's Home Page Info:

HTTP://WWW.HAMRADIO.COM

Also E-Mail: West Coast, Ken, K1ZKM: KLM@NETCOM.COM

East Coast, Chuck, KM4NZ: CWYRICK@CWYRICK.MV.COM

**SG-2000**

\$1995.95

Suggested List Price  
Call for Quotes

SGC has added an all-frequency HF transceiver to its line of fine products. The SG-2000 is a rugged commercial grade HF transceiver that provides 150 watts PEP output. It comes programmed with 644 ITU channels and 100 user defined channels that can be set to ham frequencies. The transmit frequency range is 1.8 to 30 MHz; receive range is 500 kHz to 30 MHz.

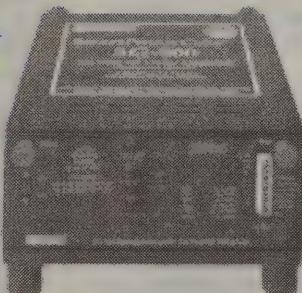
The SG-2000 can be fully controlled by any standard RS-232 protocol connector. This allows easy implementation of all digital modes. The front panel can also be removed to act as a remote head.

For more information on this HF transceiver, contact your nearest HRO store.

**Note:** This radio must be special ordered.

**HF Amplifier****SG-500**

\$999.95

Suggested List Price  
Call for Quotes

The SmartPowerCube produces tremendous power—nearly as much as a 1 KW amplifier. Yet it requires less than one cubic foot of space. Electronic brain power makes this possible. The SG-500 is an intelligent, micro-processor-controlled, high-powered linear amplifier, designed with high efficiency transistors. Its electronic brain constantly monitors your HF-SSB's activities, power needs and antenna condition, and automatically—in less than 15 milliseconds—selects the right broadband filter. It is designed to reliably produce, essentially unattended, in the most demanding conditions.

Features include:

- Fully automatic band switching
- Input overdrive, over temperature, over current protection
- Frequency coverage 1.8-24 MHz
- Power output  
SSB: 500 watts PEP  
CW 500 watts for 10 minutes  
500 watts continuous with fan  
AM 250 watts carrier maximum

**SG-2000SP**

\$1895.95

Suggested List Price—Call for Quotes

When space is tight, the SLIMPAC SG-2000sp HF-SSB is what you need. It's about an inch thinner than our world-beating SG-2000 HF-SSB, yet it delivers the same features, power and refinement. SLIMPAC also offers unmatched control head flexibility. Everything from a special aviation head to your laptop. And we are introducing new head options all the time. It's every bit an SG-2000 in a slimmer form.

Other features include:

- 644 ITU and amateur frequencies.
- 100 user programmable frequencies.
- SITOR Telex channels.
- Full 150 watt output.

For more information on this HF transceiver, contact your nearest HRO store.

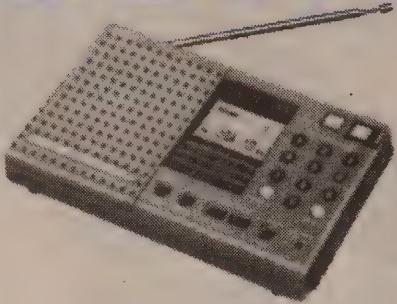
**Note:** This radio must be special ordered.

**Automatic Tuner****SG-230**  
**\$550.95**

Suggested List Price—Call for Quotes

The SG-230 Smartuner is a fully automatic antenna tuner that will tune any length antenna 8 to 80 feet in the HF bands. The SG-230 automatically evaluates and switches 64 input and 32 output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselect those values when transmitting on that frequency. For more information see page 88.

# SONY



**ICF-SW7600G**

\$229.95

Suggested List Price

Explorers and travelers love this versatile World Band Radio® receiver with stereo FM reception and instant access to all channels and bands. The built-in clock timer with sleep and stand by functions comes in handy. Features include:

- AM (LW, MW, SW) / FM stereo reception is provided over a wide range of frequencies from LW and MW to SW and FM.
- Dual-conversion superheterodyne circuitry on the shortwave bands provides high sensitivity and interference rejection.
- 10-key Direct Access™ tuning allows station selection with the ease of a pocket calculator.
- PLL quartz frequency synthesis tuning gives accurate, drift-free frequency selection.
- SSB circuitry for reception of voice and Morse code (CW) on amateur bands.
- Manual and automatic scan tuning provides for easy frequency selection.
- Antennas include a built-in ferrite bar for MW and LW and a telescoping whip.
- An antenna jack is provided for the easy connection of external antennas.
- A large 3" speaker and tone selection provides a wide range of sound with easy adjustment.
- The display is liquid crystal (LCD).
- A high / low tone adjusts for music or news.
- Stereo headphones are supplied.
- Requires 4 AA batteries (not included) or the optional worldwide AC adapter.

## SWL Antenna

### AN-1

This wide range active antenna for the short wave listener with space problems has a frequency range of 150 kHz to 30 MHz. Features a low noise FET in the built-in preamp. Built in attenuator. Requires 6 AA batteries or AC-12 adapter. Has a wide range of adapters for connecting to Sony radios. Antenna can be used inside or mounted outside. The AN-1 comes with 39 feet of cable. HRO Price \$99.95



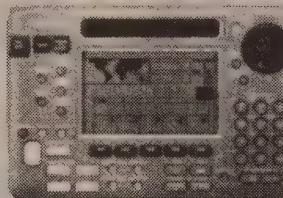
**ICF-2010**

\$429.95

Suggested List Price

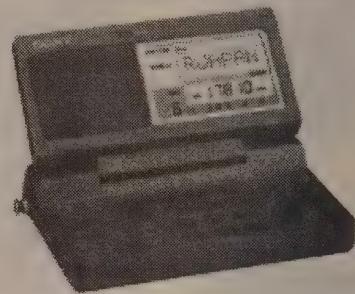
The most popular portable SWL receiver on the market is a super-compact world band radio that delivers fast direct access tuning with the utmost accuracy. Key features include:

- AM coverage from .150-29.999 MHz.
- FM broadcast band coverage.
- Dual PLL quartz frequency tuning assures optimum stability and reduces drift.
- Built-in quartz clock and 65 minute Sleep Timer with 15, 30 or 60 minute settings.
- Has BFO for receiving USB, LSB and CW.
- 32 station memory presets for instant recall.
- Memory scan tuning samples preset stations.
- Automatic band scan gives a brief sample of each station on the selected band.
- Switchable IF bandwidth with "narrow" mode.
- Comes with the AC-D3 adapter.
- The clock requires 2 "AA" (not included). **These must be installed for the radio to operate.**



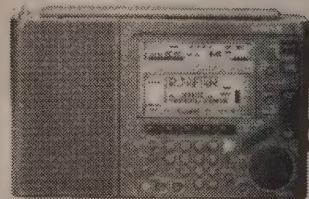
**ICF-SW100S**

\$449.95 Suggested List Price



The heart of this complete world-band radio system is a multi-band receiver the size of a cassette case. It weighs only 8 ounces with batteries. The kit provided includes a carrying case, active antenna, multi-voltage AC adapter and in-the-ear stereo headphones. Major features include:

- Covers FM 76-108 MHz, 150 kHz to 29.995 MHz plus SSB.
- Access frequencies directly with 10-key pad.
- 50 station memory presets.
- Band selector for quick access to the SW bands.
- Auto-scan searches a band for signals and stops for 1.5 seconds.
- LCD readout with 24 city name/time display.
- Built-in clock with alarm, sleep timer and dual stand-by.
- Two position tone control.
- Separate active antenna for better SW reception.
- Requires 2 "AA" batteries (not supplied) or may be powered with the AC adapter included.
- Jack for an external speaker, external antenna and DC in (3 volts).



**ICF-SW55**

\$429.95

Suggested List Price

The ICF-SW55 is the step-up model for the ICF-SW7600. It includes 100 station memory presets with the ability to display station name (up to 99 page labels). Tune with 1kHz resolution by rotary dial or 10-key Direct Access™. Step and scan tuning are also included. The ICF-SW55 features SSB reception for amateur voice and Morse code broadcasts. The ROM memory eliminates the need for a battery backup. FM stereo reception is also featured. Know the time anywhere with the built-in world clock.

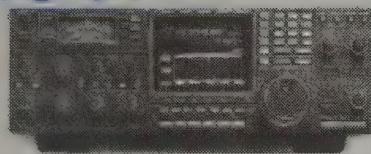
### ICF-SW77

\$624.95

Suggested List Price

The ICF-SW77 is the step-up model of the popular ICF-2010. It has provisions for 150 station memory presets to find your favorite station quickly. For better tuning, the ICF-SW77 features 50 Hz tuning resolution and you can enter the name of the station and it will display when the particular memory is selected.

**ICOM**



### R-9000

\$6825.95

Suggested List Price—Call for Quotes  
\*Notice: Federal and State Government Agencies and Communications Customers Only

Icom's top-of-the-line receiver is a truly professional model. It receives from 100 kHz to 1999.8 MHz\*. The radio has 11 separate bandpass filters that use GaAsFETs for the VHF and UHF bands. All modes including LSB, USB, CW, AM, FM, WFM (wide-FM) and FSK are included.

Included in the receiver is Icom's unique, state-of-the-art multifunctional CRT display with spectrum scope. The display provides information on the status of the radio as well as the incoming signals. It shows contents of the memories, dual clocks, weekly and daily timers, and frequency information of the dual VFO's.

The display doubles as a spectrum scope showing a maximum of ±100 kHz. Dynamic range is 60 dB and sensitivity is approximately 1 μV.



### R-71A

\$1440.95

Suggested List Price—Call for Quotes

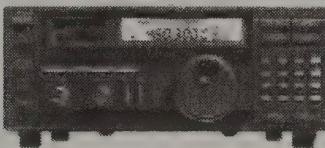
The sophisticated IC-R71A (covering 100 kHz to 30 MHz) is designed to keep you in touch with the world at all times. The IC-R71A is a versatile, multi-function receiver built for superior performance. It includes a 100 dB dynamic range, RF preamp, adjustable noise blanker, selectable AGC and tuning control or keyboard frequency selection.

### IC-R100

\$850.95

Suggested List Price—Call for Quotes

This is a great full-coverage receiver for mobile use. With FM, FM wideband and AM modes and frequency coverage of 100 kHz to 1.8 GHz (800 MHz blocked), the IC-R100 tunes in all frequencies of interest. It has scanning, memory and priority features to locate stations quickly. It has 100 memory channels that store mode, RF attenuator and preamplifier setting. Features include a 24 hour clock, 15dB preamp for 50-905 MHz, 20 dB RF attenuator, multiple tuning steps, all-mode squelch, AFC for frequencies above 50 MHz, automatic noise limiter, mobile mounting bracket, wire and telescoping antennas. Perfect for the serious scanner buff. AC power supply for home use \$44.95



### R-7100

\$1850.95

Suggested List Price—Call for Quotes

Here is the versatility and sophistication you demand to stay on top of the world with the latest in VHF and UHF technology. The receiver provides wideband, continuous coverage from 25 to 2500 MHz (800 MHz blocked). (Specifications are guaranteed from 25-1000 MHz and 1240-1300 MHz.) All modes are covered. With the optional TV-R7100 you can view TV broadcasts on your CRT monitor and listen to FM broadcasts in stereo. Other features include:

- Dial and keyboard entry tuning.
- 900 numbered memory channels.
- Multiple scanning capabilities with new window scan.
- Built-in clock and timer operations.
- AC/DC power operation.
- Options: CI-V system with CT-17; English frequency announcement with UT-36.

**YAESU**

### FRG-100

\$669.95

Suggested List Price—Call for Quotes

Yaesu's high performance communications receiver provides general coverage reception in CW, SSB, AM and FM modes from 50 kHz to 30 MHz. Features include:

- LCD display with 10 Hz read-out.
- 50 fully tunable memory channels.
- Selectable standard tuning steps plus user-programmable steps.
- Multi-function scanning.
- Adjustable BFO with selectable CW sideband.
- Optional FM unit and CW filters.
- Special Broadcast Band selection mode.

### HF Receiver

**AOR**

### AR-3030

\$899.95

Suggested List Price—Call for Quotes

Here is the newest technology in high tech receivers at an unbelievable price tag! Nothing is spared. Supports AM, SSB (USB, LSB) CW, FAX and FM. Frequency coverage from 30 kHz to 30 MHz plus optional internal VHF converter for 108-174 MHz. Includes 100 programmable memories with scanning features. Features Direct Digital Synthesizer, 10 Hz tuning and RIT for SSB/CW.

**SWL RECEIVERS**

**SANGEAN**



### ATS-803A

\$249.95

Suggested List Price—Call for Quotes

The ATS-803A is the perfect SWL radio for the budget minded listener. It has good performance and includes many features of the more expensive radios. Requires two "AA" and six "D" batteries. Major features include:

- AM / FM / LW and 12 shortwave bands.
- Headphones for FM stereo reception included.
- Auto-scan and BFO for SSB reception.
- Built-in clock and alarm clock.
- Includes: external antenna adapter, shoulder strap, AC converter, and shortwave handbook.

### ATS-818CS

\$359.95

Suggested List Price—Call for Quotes

Sangean's portable world band receiver with built-in cassette recorder offers more features and performance than many table top short wave receivers. It covers all SW bands from 120m to 11m, features a clock alarm, BFO for SSB and CW, FM broadcast band coverage, memories, dual time display and RF gain control.

**KENWOOD**



### R-5000

\$1179.95

Suggested List Price—Call for Quotes

This competition class communications receiver has every conceivable feature required by the serious shortwave listener. It is designed to receive all modes (LSB, USB, AM, CW, FM) from 100 kHz to 30 MHz. With the optional VC-20 converter unit coverage is extended to include 108 - 174 MHz.

Major features include:

- 102 dB dynamic range.
- Dual high and low impedance antenna terminals.
- Keyboard frequency selection for direct entry.
- 100 memory channels store frequency, mode and antenna selection.
- Dual 24 hour clocks with timer.
- Built-in AC power supply.
- 100 VAC only; UL approved.
- 12 VDC operation with optional DCK-2.

# uniden®

## SCANNERS

## GPS

### Handheld Scanners

#### BC-3000XLT

**\$619.95**

Suggested List Price  
Call for Quotes

The 3000XLT handheld provides 400 channels with continuous band coverage. It covers 25 to 550 MHz and from 760 to 1300 MHz (except cellular bands). It features Turbo Scan and Turbo search; 10 priority channels, all mode (AM, NFM and WFM); selectable attenuator, data skip, automatic store and sorting; flexible antenna and rechargeable battery.



#### BC-2500XLT

**\$699.95**

Suggested List Price  
Call for Quotes

Continuous band scanner up to 1.2 GHz. Fully programmable with 400 channels, 20 banks, 20 priority channels, auto store, VFO knob, WX search, Turbo scan, step select, rechargeable NiCad battery with AC adapter.

#### BC-220XLT

**\$349.95**

Suggested List Price  
Call for Quotes

The 220XLT handheld scanner features a new compact design. It has 200 channels in 12 bands with aircraft (800 MHz is blocked). Other features include twin turbo scan and search, programmed SVC search, unique skip data, and manual channel access. The scanner has a full frequency LCD display, one touch, and includes a rechargeable NiCd battery.

#### BC-200XLT

**\$329.95**

Suggested List Price  
Call for Quotes

This handheld scanner covers all the usual scanner frequencies plus the 800 MHz bands. (Cellular is locked out.) Keypad entry of all frequencies stored in 200 channels with 10 scanning banks. Features: priority channel, aircraft, weather search, squelch, lockout, track tuning, direct channel access and delay. Customized rubber duck antenna, NiCd battery pack, wall charger and carrying case included.

### Mobile Scanners

#### BC-760XLT

**\$499.95**

Suggested List Price  
Call for Quotes

This mobile scanner includes 800 MHz coverage (with cellular locked out). It features:

- 100 programmable channels organized in 5 scanning bands of 20 channels each.
- Automatic scanning of preprogrammed aircraft, police, marine and emergency services.
- Weather search, priority, squelch, lockout & delay.

### Base Units

**NEW!**

#### BC-9000XLT

**\$599.95**

Suggested List Price  
Call for Quotes

The 9000XLT base station provides 500 channels with continuous band coverage. It covers 25 to 550 MHz and from 760 to 1300 MHz (except cellular bands). It features Turbo Scan and Turbo search; 10 priority channels, all mode (AM, NFM and WFM); selectable attenuator, data skip, automatic store and sorting; automatic control tape ON/OFF, and tape output feature.



#### BC-8500XLT

**\$599.95**

Suggested List Price  
Call for Quotes

Continuous band scanner through 1.3 GHz. Fully programmable with 500 channels, 20 banks, 20 priority channels, dot matrix alpha numeric illuminated display, auto store, VFO know, WX search, Turbo scan, aux tape output, weather alert, selectable delay, reception counter, step select.

#### BC-890XLT

**\$489.95**

Suggested List Price  
Call for Quotes

Continuous band scanner through 956 MHz. Fully programmable with 200 channels, 10 banks, 10 priority channels, auto store, VFO knob, WX search, Turbo scan, aux tape output, WX Alert, illuminated LCD display, reception counter, step select.

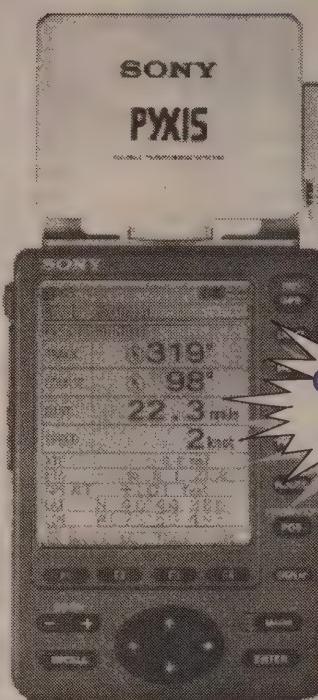
# SONY

Global  
Positioning  
System

IPS-760

CLOSE OUT  
LIMITED  
QUANTITY

**\$499.95**



The Sony Global Positioning System (GPS) receiver, Model IPS-760 is a portable, affordable, accurate way to determine your position by latitude, longitude and even altitude. Chart a course to your destination, determine your speed and time enroute, even display a graphic picture of your progress.

The ISP-760 features:

- High performance 8-channel parallel receiver automatically tracks up to 8 satellites for optimal performance.
- 1000 waypoint storage with memo capability provides greater flexibility increasing your own database with memos and graphic identifiers.
- Waterproof construction. The unit is designed to withstand a maximum submersion of 3 feet for up to 30 minutes using the supplied floatable belt.
- Interface port for data in/out capabilities with other electronic devices.
- Differential GPS upgradeable.
- 4.5" backlit graphic LCD display.
- Illuminated key pad.
- Dual IC-card slot gives the user flexibility to have optional Graphics (such as Aviation and/or Marine) Database IC-Cards or additional storage for waypoints, routes and tracks.
- Illustrates LAT/LONG grid lines while displaying your route or track, making it easy to pinpoint your starting point, present location and destination.
- Satellite performance monitor graphically displays current satellites, location, and DOP (Dilution of Precision) value.
- Quick navigation feature makes navigating to a point fast and simple.

Applications include backup for on-board marine or aviation navigation, positioning data for fishermen, terrestrial orienting and hiking. Supplied accessories: soft carrying case, mounting brackets, battery magazine, floatable belt, antenna extension cable, and utility key.

# DUAL PORT DUAL SPEED

The KPC-9612 offers more performance than any other TNC in its price range. It's the only 9600 baud unit with simultaneous dual-port operation, so it can send and receive messages at both 1200 and 9600 baud (or even 19K2). Kantronics also offers an optional K-Net EPROM and, unlike any other TNC, the KPC-9612 can operate as both a TNC and a node at the same time. K-Net is NETROM™ compatible and includes remote access so all commands are available from a remote location.

Test drive a KPC-9612 today.  
You're in for the ride of your life.

# Kantronics

For more information, contact your authorized Kantronics dealer or Kantronics at 1202 E. 23rd St., Lawrence, KS 66046-5006 913-842-7745 FAX 913-842-2031.

"Built-in duplexer and 94 memories!"

## FT-5100

### Dual Band Mobile

- Frequency Coverage:

2M: 130-174 MHz RX  
144-148 MHz TX

70 cm: 430-450 MHz RX/TX

- 94 Memories (47 per band)

Odd Splits In Any Memory

- Dual in-band receive

(V/V, U/U or V/U Receive Operation)

- DTMF Paging and Coded Squelch Included.

- Packet Radio TNC Jack Built-In To Back of Radio

- CTCSS Encode Built-In

- Dual Receive with Balance Control

- Full Duplex Cross Band Operation

- Built-In Antenna Duplexer

- Back Lit DTMF Microphone

- Automatic 8 Level Display Dimmer

- Built-In Cross Band Repeat

- RF Output Power:

2M: 50/5 watt (high/low)

70 cm: 35/5 watt (high/low)

- Accessories:

FTS-22 CTCSS Dual Decoder

SP-7 External Speaker

MW-2 Wireless Microphone/Controller

"Comes with a backlit DTMF Mic!"

"Great price and smallest dual band made, too!"

"Yaesu did it again!"

# The ultimate definition of Dual Band.



Now you can listen to two, 2 meter frequencies, or two, UHF frequencies, at the same time with In-Band Dual Receive\*. Although equipped with traditional dual band, Yaesu has taken receive two steps beyond in the remarkable FT-5100. Combined in one compact mobile transceiver, it's the ultimate meaning of "dual band".

With 94 memory channels – more than any other radio in its class – and the optional MW-2 Wireless Mic, the flexibility of the FT-5100 is matchless. But to make sure the FT-5100 is complete, and an even better value, unlike the competition, there's a backlit DTMF mic included.

Through advanced miniaturization technology you'll find practical additions like the built-in antenna duplexer – an option on similar transceivers – and equally important, DTMF paging and coded squelch. All in the smallest dual band made!

Priced for the shrewd buyer, you've got to hear it to believe it. Dual band re-defined. Combinations like this can't

#### Three Dual Receive Configurations

VHF/UHF  
146.760 146.520

UHF/UHF  
448.525 447.550

VHF/VHF  
146.760 146.520

Dual band redefined.  
And the choice is yours.

In-Band Dual Receive available only on FT-5100.

Here's another Yaesu exclusive!

The MW-2 Wireless Mic  
with Remote Control.



be found anywhere else, so contact your nearest Yaesu dealer and tell him you want the "ultimate dual band". The FT-5100.

#### FT-5200 Dual Band Mobile.

Offers the security of a quick release front control panel (not available on the FT-5100), 32 memories, DTMF paging (w/optional FRC-4), Back-lit mic, built-in antenna duplexer and more.



**YAESU**  
*Performance without compromise.™*

\*In-Band Dual Receive available only on FT-5100.

© 1992 Yaesu USA, 17210 Edwards Road, Cerritos, CA 90701 (310) 404-2700

Specifications subject to change without notice. Specifications guaranteed only within amateur bands. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

2m/70cm Mobiles

FT-2500M/FT-7400H

# Advanced Track Tuning, Mil Spec, true FM. All in one radio!

Outside, you can easily see why the FT-2500M stands up to the shock and vibration like no other. We engineered the first mobile radio to meet the rigid standards set by the U.S. Military back in the '80s, and that same critical design is in the FT-2500M. From the simplified front panel, rubber coated knobs, durable pebbled finish coating, and huge Omni-Glow™ display to the one-piece die-cast chassis, the FT-2500M can take whatever you throw at it!

Inside, the electrical circuitry meets standards so uncompromising the FT-2500M can respond like no other radio. Built-in 3-Stage Advance Track Tuning (ATT), automatically retunes from 140 to 174 MHz permitting consistent receiver sensitivity across the entire band.

But there's more. Like alpha-numeric display capability! Lets you program a frequency or a 4-character name on any of the 31 memories. With three selectable power output levels and up to 50 watt power output, the FT-2500M extra large heat sink means forced air cooling is not necessary. And, as a bonus, Yaesu's

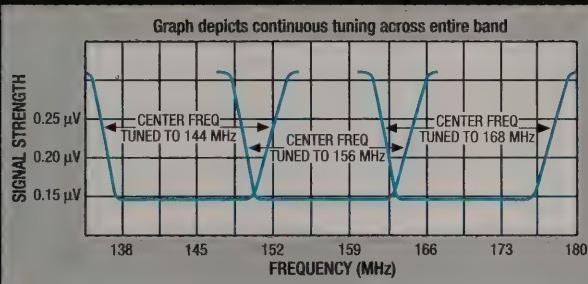
"Just look inside. Military spec really means something to Yaesu!"

"A QST review says 'the FT-2500M exhibited superior 10 MHz offset IMD dynamic range of 103 db!'"

## FT-2200/7200

Just 5.5" W x 1.6" H x 6.5" D, the FT-2200/7200 radios are designed to fit into today's more compact cars with ease.

**SPECIFICATIONS** • Frequency Coverage:  
FT-2200 RX: 110-180 MHz, TX: 144-148 MHz.  
FT-7200 RX/TX: 430-450 MHz. • Wide Receiver Coverage: 110-180 MHz • AM "Aircraft" Receive: 110-139 MHz • Built-in DTMF Paging/Coded Squelch • Selectable Channel Only Display • 10 Memory DTMF Auto Dialer • Backlit DTMF Mic • Power Output 50/20/5 Watts (FT-7200 35/15/5 Watts) • 50 Memory Channels • Remote Operation w/ Optional MW-2 • CTCSS Encode Built-in • Optional Digital Voice Storage System. Accessories: See your authorized Yaesu dealer.



**3-Stage Advance Track Tuning (ATT)** — The exclusive 3-Stage Advance Track tuning front end automatically adjusts band width sensitivity across the entire receiver range, while maintaining selectivity specifications. ATT significantly reduces interference from inter-modulation and front end overload.

exclusive backlit DTMF mic comes with every FT-2500M.

Experts say the FT-2500M is the only commercial-grade amateur radio available. So, for tough manufacturing standards, inside and out, with true FM clarity, and outstanding performance, the FT-2500M is your mobile.

# YAESU

Performance without compromise.™

"This Advanced Track Tuning practically eliminates intermod!"

"Yaesu did it again."

## Specifications

- **Frequency Coverage:**
  - FT-2500M  
RX: 140-174 MHz  
TX: 144-148 MHz
  - FT-7400H  
RX/TX: 430-450 MHz
- Rugged Military Spec Design
- Advanced Track Tuning (ATT)
- Selectable Alpha-Numeric Display
- Omni-Glow™ Display, largest available
- Power Output:  
FT-2500M 50/20/5 Watts  
FT-7400H 35/15/5 Watts
- Flip Up Front Control Panel hides seldom used buttons
- Backlit DTMF Mic
- 31 Memory Channels
- CTCSS Encode Built-in
- Automatic Power Off (APO)\*
- Time-Out Timer (TOT)\*
- Manual\* or Automatic Backlighting Adjustment
- **Accessories:**
  - FP-800 20 Amp HD Power Supply w/ Front Mounted Speaker
  - FRC-6 DTMF Paging Unit
  - FTS-17A CTCSS Decode Unit
  - SP-4 External Mobile Speaker w/ Audio Filters

\*FT-2500M



"200 watts, real cross band receive,  
even two flywheel-weighted  
main knobs!"

"Yaesu did it again!"

"Right, there's only  
one real performer –  
the FT-1000."

## FT-1000 All Mode HF Transceiver

- RF Power Output:  
Up to 200 Watts
- True Cross-band Dual Receive:  
Two Large Tuning Knobs
- Front Panel RX Antenna  
Switch: For Beverage or Loop
- Direct Digital Synthesis (DDS)
- Automatic Antenna Tuner:  
Built-in, 30 Memories
- Frequency Range:  
100kHz-30MHz (RX),  
160-10 meters (TX)
- 100 Memories: Independent  
ATU and Mode/IF Filter  
Memory
- CW Spot and Two CW Key  
Jacks for Maximum  
Convenience
- Dynamic Range: 108 dB
- Optional Digital Voice Recorder  
(DVS-2): 16 Seconds Each  
RX/TX
- **Accessories:**  
**SP-5** External Desk-top  
Speaker  
**LL-5** Phone Patch Unit  
**MD-1C8** Desktop Microphone  
**YH-77ST** Stereo Headphones  
**FL-7000** 500W Linear Amplifier  
**DVS-2** Digital Voice Recorder

# Hear signals you've never heard before.



You're a competitor. You want optimum receiver performance and you want "muscle" on transmit. First with 200 watts – more power than any competing transceiver – and "hand warm" at maximum RF. It's easy to see why the FT-1000 has been judged "best overall" by top DX'ers worldwide.

For elite-class contesting and DX operation, exclusive features maximize your score. Dual Receive – Watch a multiplier or new country on one frequency, run QSOs on another. Diversity Reception – Use two antennas at different heights or opposite polarization. Extensive Cascaded IF Filtering – For "low end" battles.

Dramatic front panel design features two flywheel-weighted tuning knobs, RX antenna selector and two large displays.

A perfect blend of electronics and human engineering, the FT-1000 is the Best of our Best!

To hear signals you've never heard before and get the competitive edge, see your Yaesu dealer today.

# YAESU

*Performance without compromise.<sup>TM</sup>*

## FT-11R/41R 2m/70cm Handhelds

- **Frequency Coverage:**  
Wide Receiver Coverage:  
FT-11: 110-180 MHz RX,  
144-148 MHz TX  
FT-41: 430-450 MHz RX/TX
- Selectable Alpha Numeric Display
- New Compact Battery Design  
4.8V produces 1.5 Watts  
9.6V produces Full 5 Watts\*
- 150 Memory Channels  
(75 when Alpha Numeric)
- AM "Aircraft" Receive  
(110-136 MHz)
- Small Compact Size w/ Easy Operation (measures only:  
4" H x 2 1/4" W x 1" D)
- Rx/Tx Battery Savers
- High-efficiency MOS FET Power Module
- Large Back-Lit Keypad and Display
- Up/Down Volume/Squelch Controls
- Built-in DTMF Paging/Coded Squelch
- Automatic Power Off (APO)
- **Accessories:**  
**FNB-31** 4.8V, 600 mAh Battery  
**FNB-33** 4.8V, 1200 mAh Battery  
**FNB-38** 9.6V, 600 mAh Battery  
**FBA-14** 6 AA Size Battery Case  
**FTS-26** CTCSS Decode Unit  
**NC-50** Dual Slot 1-Hour Desk Charger  
**CA-10** Charge Adapter  
(required w/ NC-50)

\*FT-11 Only.  
FT-41, 3.5 Watts

"Look, alphanumeric display and a 4.8V battery. Terrific!"

"Small and thin – with a full sized keypad! How'd they do that?"

"Yaesu did it again!"

**NEW!**



### NEW Alphanumeric Display

First time for Yaesu HT. Full function LCD combines letters and numbers.

**NEW Up/Down Thumb Control with Volume and Squelch Bar Graph.** No other radio has this. Back lit, too!

**NEW Compact Battery Design** 4.8V gets you 1.5 Watts. A first for amateur radio.



# Get a grip on this!

World's smallest size HT with a full sized keypad  
Measures only: 4" H x 2 1/4" W x 1" D

**S**mall" is relative, isn't it? It could mean size – which in this case it does. And, it could mean "reduced", which it doesn't! Nothing missing from the hot new FT-11R HT from Yaesu except bulk! You're going to wonder just how all the features of this full-function radio fit in. Until you remember Yaesu pioneered 2-way radio micro technology.

To see what this really means to you,

check out all the new features. Like the alphanumeric display. This Yaesu HT first, lets you tag your favorite frequency by name, call sign or number. Or, the new "voltage stingy" battery. It's an industry first for amateur radio. Smaller and compact, the 4.8V battery gives you 1.5 watts on TX. And, if that's not enough, there's an optional drop in, dash mount battery charger.

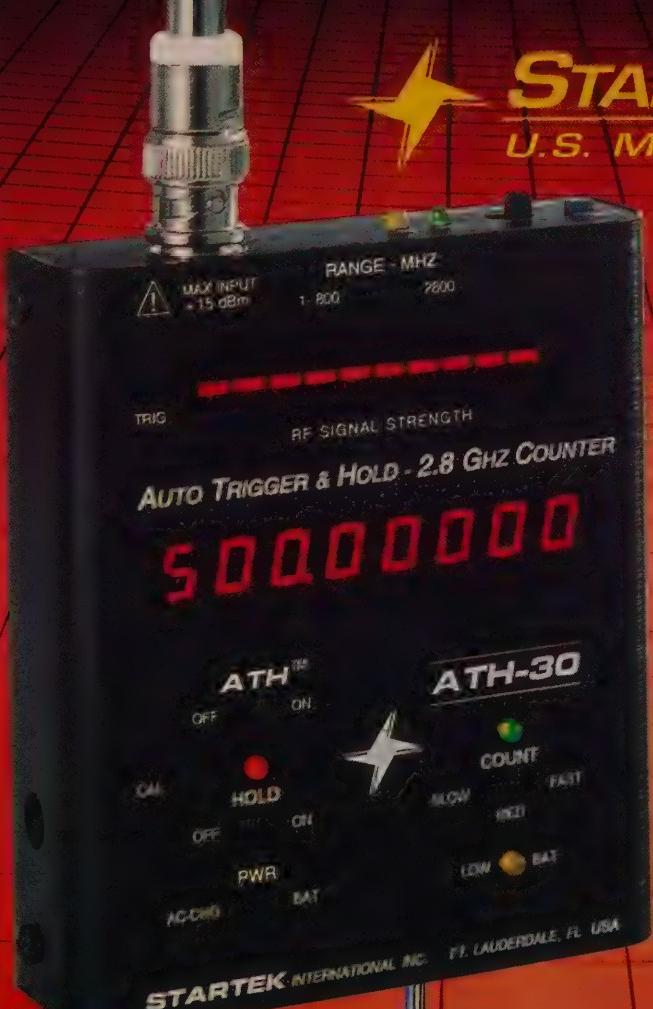
You see it's not a small time performer. Just small sized. The FT-11R. Another small example of Yaesu superiority. See your dealer today!

**YAESU**

*Performance without compromise™*

# STARTEK INTERNATIONAL INC.

## U.S. MADE FREQUENCY COUNTERS



Optional #TA-90 Antenna

BAND PASS FILTERS



### FEATURES

	<b>ATH-10 CALL reg \$179</b>	<b>ATH-15 CALL reg \$235</b>	<b>ATH-30 CALL reg \$299</b>	<b>ATH-50 CALL reg \$339</b>
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FREQUENCY RANGE	1 MHZ - 1200 MHZ	1 MHZ - 1500 MHZ	1 MHZ - 2800 MHZ	5 Hz - 2800 MHZ
AUTO TRIGGER & HOLD	YES	YES	YES	YES
SIGNAL BAR GRAPH	NO	YES	YES	YES
LOW BATTERY IND.	NO	YES	YES	YES
ONE-SHOT & RESET	NO	OPTIONAL	YES	YES
HI-Z LOW RANGE	NO	NO	NO	YES

**OPTION #HST-15** is a high accuracy, high stability, time base upgrade that can be ordered with any **ATH™** series model ( $\pm 0.2\text{PPM}$  TCXO) **\$100**

### BAND PASS FILTERS EXTEND READABILITY DISTANCE. Call For Price

#LP-60	DC - 60 MHZ	#BP-150	130 - 500 MHZ
#HP-400	400 - 1500 MHZ	#HP-800	800 - 2000 MHZ

**FAST** and **CONVENIENT**, **RELIABLE** and **COMPACT** describe the **STARTEK ATH™** series, *Auto Trigger & Hold Frequency Counters*.

**USE** to find unknown frequencies, locate RF sources, check equipment for operation and frequency calibration. Use with antenna analyzers for antenna tuning, monitor the output frequency of transmitters, signal generators and more.

**POCKET SIZE** for convenient portable use – internal Ni-Cad batteries and AC charger/adapters are included.

**EASY** to use – no complicated controls or multi-function switches.

**BRIGHT** red LED digits for excellent readability and reliability.

**BAR GRAPH** indicating signal strength, on most models.

**PREAMPLIFIER** circuits are built into all **ATH™** series counters for maximized – ultra high sensitivity.

**5-YEAR** all parts and 1 year labor limited factory warranty.

**U.S. made** and very affordable – prices start under **\$120**.

### ACTUAL SIZE

### ACCESSORIES

#CC-90	Soft Case for all models	\$12
#TA-90	Telescope BNC antenna	12
#TA-90-L	Telescope Elbow BNC antenna	16
#RD-150	150 MHZ Rubber Duck antenna	16
#RD-2750	27 & 50 MHZ Rubber Duck antenna	19
#RD-450	450 MHZ Rubber Duck antenna	16
#RD-800	Cellular phone band RD antenna	16
#M-207-IC	Interface Cable MFJ ant. analyzers	10
#P-110	200 MHZ 1X-10X probe	39
#LP-22	Low Pass, Audio probe	25
#DC-10	Direct, 50 OHM probe	20
#DC-5	BNC Cable to Clip Leads	12

In Stock at **HRO®**

All instruments are true  
Pocket Size:

• High x 3.5" Wide x 1"  
Deep, <14 cubic in. and  
are shipped with  
factory installed  
Ni-Cad batteries and  
AC charger/adapters.

Antennas are optional.

**Call any  
HRO® Store  
for Special Prices  
and Ordering**

For technical questions or model selection,  
call Startek Help Line 305-537-5577



STARTEK INTERNATIONAL INC.

Ft. Lauderdale, Florida U.S.A.

**ANLI**  
Antenna

**800-666-ANLI**  
20277 Valley Blvd., #J  
Walnut, CA 91789  
FAX: 909-869-5710

## Power Station

3.6,9,12V DC / Power Supply + Battery

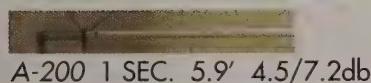


- 1. LED Charging Indicator
- 2. DC 3-6-9v Selector Switch
- 3. Charge Input Cigarette Socket
- 4. DC 3-6-9v Output Connector
- 5. Voltmeter
- 6. LED Power "On" Indicator
- 7. Main Power On/Off Switch
- 8. DC 12v Output Cigarette Socket
- 9. Output (+ -) Terminal-15A

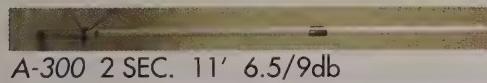
7 lb. H8" W7" X 4.5"  
Quick charging AC adaptor & car cable included.

## Base Antenna

### DUAL BAND/HIGH GAIN



A-200 1 SEC. 5.9' 4.5/7.2db



A-300 2 SEC. 11' 6.5/9db



A-1000 3 SEC. 17.5' 8.5/11.8db

- Lowest VSWR
- Heavy Duty Fiberglass
- Include all mounting hardware

## Mounts



CM-1,CM-2 BNC CLIP  
Angle Adjustable



WA-1 BNC  
Window Mount



TA-1 Angle Adjustable Trunk  
Mount NMO/UHF



MC-1 Hi-Flux Magnet  
Mount NMO/UHF



## Ham Radio Antennas

### RD-78 OVER 30,000 UNITS SOLD

- 1 RD-8: Dual Band & 900MHz 6" Wide-Band, also for scanning
- 2 AL-800: 2 IN 1. 144/445 3.2/5.6db
- 3 RD-78: Dual Band & 900MHz 2.15/3db 15" Wide-Band, also for scanning
- 4 S-1: Dual Band 2.15/3db 50W 14"
- 5 AT-3: Dual Band 2.15/3db 100W 15" UHF only
- 6 AT-2: 200W 2' Broad Band NMO only
- 7 AT-2+: Multi-Band Hi-Gain Mobil Antenna, 3'6" NMO only
- 8 AT-4: Dual Band 3/5.5db Fold over, 3'3", NMO/UHF



### S-1 (Antenna) WA-1 (Mount)

With the WA-1 Windows Clip Mount, you can mount your H.T.(or ANLI S-1) Antenna to your car window or sunroof.

## 2 IN 1 High Gain Antenna

**AL-800**



Now you can have a high gain antenna on your dual band HT with the AL8000. An impressive gain 3.2 dBd on 2meters and 5.6 dBd on 70 cm lets you enjoy dependable QSO's, where other antennas would fail, (and it collapses for convenience). For additional compactness, the telescoping section can be quickly replaced with the rubber whip, giving you 2 ANTENNAS in 1. Both ways have an excellent VSWR with or without groundplane.



**For Hams Who Demand  
High Quality . . .**

## AT-2 Series Broad Band Antennas

- Maximum Gain
- Maximum Band Width
- Heavy Duty Stainless Steel, Double Spring Loaded
- Weather Proof
- Fiber Glass

EXTRA **3 YEARS WARRANTY \***

- |           |                            |
|-----------|----------------------------|
| AT-2      | 146 / 445 MHZ 3/5 db       |
| AT-2+     | 146 / 445 MHZ 4.1/6 db     |
| AT-2A+    | 146 / 220 MHZ 4.1/4.8 db   |
| AT-2+ Tri | 146 / 220/445 4.1/4.8/6 db |

### VSWR



\* See ANLI warranty policy



# Get A Grip

Get a CASH Discount or  
FREE \$50 value CMP115  
Speaker-Microphone

on these

# Savings!

\$50 Value Speaker-Mic

**C178A 2 Meters**  
(+low power 440)  
**The Deluxe Dual-Band HT**

Single-band Price

- 5W (2M) at 12 VDC & 50mW (440)
- 40+ memories (opt 200+ with plug-in chip)
- 110-174 & 320-474MHz extended Rx (including AM air band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

\$50 Value Speaker-Mic

**C168A 2 Meters**

**The Deluxe small HT**

- 5 watts at 12 VDC
- 40+ memories (or optional 200+ memories with plug-in chip)
- 115 to 174MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

\$30 Cash Discount or

\$50 Value Speaker-Mic

**C228A 2M & 220MHz**

**Deluxe Twin-Band HT**

- 5W (2M and 220) at 12 VDC
- 40 memories (20 + 20 "limited" memories)
- 130-174 and 200-244MHz extended receive
- 1 Auto Dial memory
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

\$30 Cash Discount or

\$50 Value Speaker-Mic

**C558A 2 Meter & 440MHz**

**Elegance, Balance and Twin-Band Performance**

- 5W at 12 VDC
- 40+ memories (opt. 200+ memories with plug-in chip)
- 115-174 & 340-474MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold



- Instant Cash Discount (\$ \_\_\_\_\_ CASH Discount issued by DEALER)  
 or CUSTOMER mails in coupon for FREE CMP115 speaker microphone



STANDARD is the world's largest manufacturer of VHF-UHF Amateur Radio equipment  
For further information, contact your Standard dealer or  
call (312) 763-0081 FAX (312) 763-3377

To Standard customer: Call your STANDARD dealer or mail the immediate Cash Discount of \$30 on C158A, C228A, and C558A or \$25 on C188A and C528A. Or, picking the Free \$50 Value Speaker Microphone CMP115, mail this free-in-coupon direct to STANDARD, along with a copy of your sales receipt for the Free CMP115 Speaker Microphone. The Free CMP115 applies to C158A, C168A, C178A, C188A, C468A, C528A, C228A and C558A, and the CMP115 will be mailed directly to you from STANDARD, not from dealer stock. Please allow a minimum of 3 weeks for processing and mailing of the CMP115. These two offers cannot be combined with each other. Not valid with any other STANDARD offer or discount. No substitutions. Coupon is not transferable, and has no cash value. Offer valid for radios sold by authorized STANDARD Amateur Radio dealers. Check with STANDARD or your dealer for the expiration date of this offer. All coupons sent to STANDARD must be postmarked by the 15th of each processing month while sale is valid. Void where prohibited.

To STANDARD dealer: To receive credit for Cash Discount, given at the time of sale, follow all applicable conditions as per above.

Killed-in coupon to STANDARD with a copy of sales receipt.

Send filled-in coupon, with a copy of sales receipt to:

Standard Amateur Radio Products, Inc.

P.O. Box 4460 Niles, IL 60714

\$30 Cash Discount or

\$50 Value Speaker-Mic

**C158A 2 Meters**

**The Affordable HT**

- 5 watts at 12 VDC
- 20 memories
- 130 to 170MHz extended receive
- Unsurpassed 0.158 microvolts sensitivity
- CTCSS Encode and Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

\$25 Cash Discount or

\$50 Value Speaker-Mic

**C188A 2 Meters**

**The Slim-Line HT**

• fits in your shirt pocket!

- 5W at 12 VDC
- 40+ memories (or optional 200+ memories with snap-in chip)
- 115-174MHz extended receive (including AM aircraft band)
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

\$50 Value Speaker-Mic

**C468A 440MHz**

**The Deluxe small HT**

- 5 watts at 12 VDC
- 40+ memories (or optional 200+ memories with plug-in chip)
- 400-474MHz extended receive
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

\$25 Cash Discount or

\$50 Value Speaker-Mic

**C528A 2M & 440MHz**

**Deluxe Twin-Band HT**

- 5W (2M and 440) at 12 VDC
- 40 memories (20 + 20 "limited" memories)
- 130-174 and 300-474MHz extended receive
- CTCSS Encode/Decode
- DTMF squelch with Paging
- Scanning-busy, pause or hold

For more information on this and other Standard products, please contact your nearest STANDARD dealer. Specifications, price and features are subject to change w/o obligation or notice.



**STANDARD**

MARSHALL MARSH CAP Transmitter Module

New Dual Band!  
Wide band HT!  
**C508A**

**GRIP IT. LIVE IT.**

DUAL BAND  
ANTENNA

### STANDARD

has done it again!

Great radios come in small packages. First came the C108A - the tiniest 2m radio - operates on 2AA batteries and fits in your shirt pocket.

Next, GREATNESS evolved into the C508A the DUAL BAND big brother to the C108A - it too, fits in your shirt pocket and operates on 2AA batteries, and more... The C508A has 280mW of output (comparable to low power of most HT's operating on a nicad battery pack) adequate power to hit most local repeaters with its helical designed antenna.

### Take it anywhere.

The C508A is perfect for HAMFESTS, picnics, hiking, or while using your mobile rig in cross-band repeat mode, for quick access to a distant repeater. Be confident that your carrying the BEST amateur radio - you've got a STANDARD. STANDARD has exceptional RF features, incredible extended receive capabilities and solid transmitting performance.

### Specifications

- Frequency Coverage: 100-180 MHz  
    Approx. 340-400 MHz  
    400-480 MHz
- AM programmable for aircraft
- 60 memories + 2-VFO, 2-Call
- CTCSS 39 tones-Encode/Decode
- 22 menu selections
- RF squelch
- Freq steps, 5, 10, 12.5, 15, 20, 25, 30 and 50
- Scan types: Busy, Pause or Hold  
Scan: 1 MHz, Entire band, Program, Memory, Specific memory frequencies, Block and CTCSS
- PTT and Frequency lock
- Keyboard lock
- Tone burst: 1750 Hz
- APO: Auto Power Off
- Battery save: 4 steps
- Auto power off: adjustable
- Output power: 280 mW
- Operates from 3V "2-AA"
- Size approx: 2.28" W, 3.35" L, 0.98" D
- Weight approx: 5.65 oz



### ACCESSORIES

- CHP111 Headset microphone
- CHP150 VOX microphone
- CLC502 Standard soft case
- CMP111 Speaker microphone
- CMP113 Tie pin microphone
- CMP115 Mini speaker microphone
- CMP123 Ear speaker/mic
- CNB401 NiCad battery pack
- CSA401A NiCad battery charger

STANDARD is the world's largest manufacturer of VHF-UHF Amateur Radio Equipment. For further information contact your Standard dealer or call (312)763-0081 FAX (312)763-3377 Standard Amateur Radio Products, Inc. P.O. Box 48480 Niles, Illinois 60714

\* Modifications for MARS/CAP transmit require an appropriate license.

Specifications, features and price are subject to change without obligation or notice.



**STANDARD**

TINIEST HAND-HELD C508A

## IC-775/IC-775DSP

Pull out signals no one else can!

- New ICOM DSP technology
- MOS FET PA with 200 watts
- Built in power supply & antenna tuner
- Dual receivers with independent dials and lock
- DDS (Direct Digital Synthesis)
- Advanced interference rejection features, twin PBT, IF notch, the works!

## IC-736/IC-738

Expand your HF horizons

- IC-736 – HF, 6M, built-in power supply
- IC-738 – HF, DC power supply required
- New DDS (Direct Digital Synthesis)
- 100 watts SSB, CW, FM / 40 watts AM
- High speed automatic tuner
- 100% full duty cycle (IC-736)
- Quick-split operation

## IC-2350H

Mobile 2M (50W)+440 (35W)

- Wide band Rx (118–174 MHz)
- Independent tuning knobs
- 100 memory channels
- Remote control mic (opt. UT-101)
- Tone scan (optional UT-89)

# ICOM

## THE NEXT GENERATION

**NEW!**

## IC-706

Incredibly small  
HF/UHF all-mode transceiver  
**100W on HF & 6M  
and 10W on 2M!**

- Receive 30 kHz – 200 MHz !
- Removeable, remoteable front panel allows control of all features
- Large LCD display featuring alphanumeric memory names and soft key descriptions
- User friendly design with big, easy to control dials
- First ever! Nothing else like it!



IC-T22A/IC-T42A



## IC-T22A/IC-T42A

Shirt pocket small, ultra-slim  
and BIG crisp audio

- 5 watts of power (at 13.5V DC)
- 40 memory channels with auto "log-in" feature
- Direct 12V operation (4.5-16 volts)

Affordable price



IC-2000H



IC-2350H



IC-736/IC-738



IC-775/IC-775DSP



IC-W31A



IC-Z1A



## IC-2000H

Superior wideband reception  
(118 – 174 MHz)!

- 2 meter FM mobile 50 watts
- Large alphanumeric display
- 50 memory channels
- Alphanumeric ID
- Rugged aluminum frame

## IC-W31A/IC-Z1A

Powerful new dual banders

- IC-Z1A comes with a radical new removable remote control panel
- Alphanumeric memory display, message and paging
- Independent tuning knobs
- Impressive audio
- Backlit display and keypad

## IC-T22A/IC-T42A

Shirt pocket small, ultra-slim  
and BIG crisp audio

- 5 watts of power (at 13.5V DC)
- 40 memory channels with auto "log-in" feature
- Direct 12V operation (4.5-16 volts)

Affordable price

All ICOM's brochure hotline for more info: (206) 450-6088. Or contact ICOM Technical Support in the Hamnet forum on CompuServe® @75540,525  
(Internet: 75540.525 @ compuserve.com) \*Available May/June 1995. † This device has not been approved by the Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased until the approval of the FCC has been obtained. © 1995 ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004. The ICOM logo is a registered trademark of ICOM, Inc. All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. CompuServe is a registered trademark of CompuServe, Incorporated, an H&R Block Company. DAYTON95

ICOM

THE NEXT GENERATION

# NEW!



*Breakthrough filter technology!*

*Pull out signals no one else can!*

ICOM next generation technology for HF operators is now available! The IC-775DSP (also available without DSP as the IC-775, a version which can be modified at any time with the optional UI-100) is engineered from the ground up, using next generation design and components, offering a combination of features and performance you'll find nowhere else.

- **TRANSMIT DSP\*** Precise control of transmit signals at the modulation stage produces a high quality SSB transmit signal that analog methods can't match.

- **RECEIVE DSP\*** The digital signal processor separates the desired signal out from the noise before it enters the audio amplifier! You can pull very weak signals right out of the noise!

- **ADVANCED INTERFERENCE REJECTION AND NOISE REDUCTION** Digital automatic notch\*, digital low/high pass filters\*, digital ultra-narrow CW filter\*, manual IF notch, manual audio peak filter,

# ICOM IC-775 DSP

**UNSURPASSED SIGNAL  
QUALITY...WITH  
REVOLUTIONARY DSP  
TECHNOLOGY ON  
TRANSMIT AND RECEIVE!**

*features you've only dreamed of*

- ICOM DSP on Transmit and Receive
- Noise Reduction/Auto Notch\*
- Twin Pass Band Tuning
- Dual Receive
- 200W MOS FET PA with built-in Power Supply
- Digital Noise Reduction\*:
  - Digital Low and High Pass Filters
  - Digital Modulation/Demodulation
  - Digital Automatic Notch
  - Digital Ultra-Narrow CW Filter
  - Digital Automatic APF (Audio Peak Filter)

- Rx 100kHz-29.990 MHz
- New Single Crystal Control DDS
- RTTY/DATA Mode
- HF Packet Ready
- IF Notch
- APF (Audio Peak Filter)
- Quick-Split Function
- Memory CW Keyer
- CW Pitch Control & CW Reverse Mode
- Two CW Key Jacks
- 1Hz Tuning and Display
- Large LCD with new CFL Back Light
- Built-In Automatic Antenna Tuner
- Dual Antenna System
- Selectable Pre-Amp (2 Levels) and RF Attenuator (3 Levels)
- Triple Band Stacking Register
- Built-In Tone Encoder
- VOX
- 99 Memory Channels
- XFC
- Noise Blanker with Adjustable Level and Width
- AGC with Adjustable Time Constant
- RF Speech Compressor
- Optional SSB filters
- Optional Speech Synthesizer

CW reverse mode and a noise blunker (with adjustable level and width) are a next generation combination of features providing incredibly clear signals.

- **DUAL WATCH** Dual watch with 2 independent tuning knobs enables monitoring of 2 frequencies...simultaneously.

- **TWIN PASS BAND TUNING** Allows you to zero in on and isolate a signal from both sides of the pass band. Ideal for contests, nets, etc...!

- **200 WATTS** Power MOS FETs in all stages of the PA unit provide excellent signal quality, good IMD characteristics and reliable full-duty cycle operation.

- **BUILT IN ANTENNA TUNER** A high speed tuner is built-in and matches the connected antenna in all ham bands, including 160 m.

- **NEW DDS** The new Direct Digital Synthesizer system uses a new PLL which operates without a mixer and uses a single crystal which provides very high stability.

- **CW FEATURES** CW enthusiasts will love the electronic memory keyer, CW pitch control, CW reverse, full break-in (QSK) and two key jacks.

The new IC-775 DSP is the next generation rig you've been patiently waiting for. For more information about the IC-775DSP or the IC-775, visit your local ICOM dealer, contact ICOM Technical Support on CompuServe® @ 75540,525, or call ICOM's brochure hotline for more information: (206) 450-6088.

**ICOM**  
*Experience the Quality™*

# 2 NEW DUAL BANDERS FROM ICOM!

## IC-W31A/IC-Z1A FEATURES

- 5 watts of power (high) @ 13.5 V
- Slim profile
- Independent tuning knobs
- Multiple power-saver functions w/ battery voltage readout
- Impressive audio output
- 700 mAh nicad battery
- UHF/UHF, VHF/VHF, or VHF/UHF band operation
- Simultaneous receive on both bands
- Operation capable with 4.5V to 16V external power supply
- CTSS encode standard (tone decode and tone scan with optional UT-93)
- New HS-85 optional headset
- Auto repeater offset and memory
- Selectable DTMF auto dialing speed
- Adjustable power output (3 levels)
- Compatible with BC-79A drop-in charger (AD-51 req.)
- AM aircraft Rx • MARS/CAP modifiable



### ICOM'S NEXT GENERATION TECHNOLOGY IN DUAL BAND HANDHELDS

The IC-W31A and IC-Z1A are both small, slim and jam-packed with features you wouldn't expect at such an affordable price.

**IC-Z1A REMOVABLE REMOTE CONTROL PANEL IS A FIRST!** — Better than a speaker-mic, the remoteable control panel provides a full functional display of all operating conditions (including bands and frequencies) and complete control of volume, operating modes, tuning, scan, band selection, ON/OFF, and PTT. The remote control panel comes standard with an extension cable and lapel clip.

**IC-W31A TRADITIONAL SINGLE UNIT OPERATION** — 1/3 slimmer than its IC-Z1A cousin. Great looks match its outstanding performance.

**ALPHANUMERIC MEMORY DISPLAY** — Up to 6 characters for memory channel identification. 104 memories may be displayed by either the frequency or alpha name. An EEPROM prevents losing memory information if the battery runs down.

**ALPHANUMERIC MESSAGE AND PAGING** — Use the alpha display to transmit and receive up to 6 characters (using DTMF tones) as a simple message pager, acknowledgments, etc....

**EASY TO USE BACKLIT KEYPAD** — The keys are big, well-spaced and easy to use. For more information about the IC-W31A or the IC-Z1A, visit your local ICOM dealer, contact ICOM Technical Support in the Hamnet forum on CompuServe® @ 75540,525 (Internet: 75540.525 @ compuserve.com) or call ICOM's brochure hotline for more free information: (206) 450-6088.



All features are operational in both the single unit and remote configuration (separation kit included).

**WORLD'S FIRST  
REMOTEABLE  
CONTROL PANEL!**

# IC-Z1A



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**IC-W31A**  
ULTRA SLIM DESIGN,  
BIG PERFORMANCE

**ICOM**  
Experience in Quality

# ICOM'S NEW IC-2000H

## LEADS THE WAY TO CLEAR, CRISP RECEPTION! -

Mobile radios (of all manufacturers) have recently experienced increasing problems from cross modulation interference. This has been caused by the increasing quantity of RF devices (i.e.: mobile radios, paging systems, cell phones, cordless phones, etc...) Commonly known as "intermod", this interference can make a mobile radio unuseable at certain frequencies, depending on local area conditions.

### SUPERIOR WIDEBAND RECEIVER CHARACTERISTICS

ICOM's IC-2000H has been specifically designed to deal with this growing problem. A tracking tuning system and high quality RF band pass filters are employed to improve image rejection and intermodulation characteristics. Now you can pursue your hobby in areas previously not possible due to interference. Plus, you're less likely than ever to miss an important call!

**ALPHANUMERIC DISPLAY** - With the IC-2000H you can program a



**50 WATT OUTPUT** - Work distant repeaters with the IC-2000H. The full 50 watts of output power gives you enough muscle to work most applications. And when you don't need as much power, such as when working a close station, you may choose a 5 or 10 watt output power setting.

**"ONE-PIECE" CONSTRUCTION** - ICOM gave the IC-2000H a rugged "one-piece" die cast aluminum frame and our largest heat sink ever. Now you'll get dependable, stable transmissions

# NEW! IC-2000H

### • FEATURES •

- 50 W of power (50, 10, 5 selectable)
- Rx 118-174 MHz (118-136 AM, 136.1-174 FM)
- Tx 140-150 MHz (for MARS/CAP)
- AM aircraft receive

*— superior  
WIDE BAND  
reception —*

in extreme environments. Plus, any heavy duty cycle operation is no problem.

**PRICE PERFORMANCE** - Even with it's high



6 character name for each memory channel. With the name displayed instead of the frequency you'll have instant ID of memory channels, less confusion and mistakes, and a logical and convenient memory management system.

quality construction, great features and exceptional performance, the IC-2000H is one of the most economical 2 meter FM mobiles around. You'll get real value for your money.

**FOR MORE INFO CALL ICOM'S FREE BROCHURE HOTLINE: (206) 450-6088**

- Alphanumeric display
- Message paging
- 50 memory channels
- 2 scratch pad memories
- 6 scan edge memories
- Full scan + program scan
- 5 scan resume conditions
- Call channel
- Busy channel lockout
- Auto power off
- Scan modes and priority watch
- Programmable up switch
- DTMF mic included
- "One touch" button operation
- Separate volume and squelch knobs
- Alpha message paging (UT-55 required)

- Tone scan (UT-85 required)
- Code squelch/pager (UT-101 required)
- Tone squelch/pocket beep (UT-85 required)

# Kenwood's TM-733A - Faster and Faster!



## Features

- Max. 50W output (144MHz), 35W (440MHz)
- "6-in-1" programmable memory
- 72 memory channels
- Time Operated & Carrier Operated scan stop modes
- Dual receive on same band (VHF+VHF or UHF+UHF)
- Built-in DTSS selective calling with page
- ASC (Auto Simplex Checker)
- Built-in CTCSS encoder & optional 15U-8 decoder
- Key function display ■ Automatic band change
- AIP (Advanced Intercept Point) ■ Cross band repeater
- Selectable frequency step (5, 10, 15, 20 or 25kHz)
- Wireless clone function ■ Incremental MHz key
- S-meter squelch
- Tone alert system with elapsed time indicator
- Separate speaker terminals for each band (switchable)
- Auto repeater offset (144MHz)
- Repeater reverse switch & offset switch
- 3-position RF output power control
- Dimmer control ■ Auto power-off

## TM-733A FM DUAL BANDER



Kenwood's new FM dual bander, the TM-733A (144MHz/440MHz), is specially tailored for hassle-free mobile communications with a unique "6-in-1" programmable memory. Six entire operating profiles—including everything from frequency range to dimmer level—can be stored, ready for instant recall. So there's virtually no need to adjust your settings. The detachable front panel has a high-visibility LCD with key function display to make on-the-move operation even easier. Of course, this compact transceiver has a full complement of sophisticated features, including 72 memory channels, DTSS selective calling and page functions, ASC (checks whether you can switch from a repeater to simplex communications), AIP (Kenwood's exclusive circuit for enhancing RX performance) and a jack for 1200/9600 bps packet use. And as well as receiving simultaneously on VHF and UHF bands, the TM-733A can receive two frequencies on the same band (VHF-VHF or UHF-UHF). There's even an optional quick-release kit as an added anti-theft measure. So check out the TM-733A—a sensation bred from inspiration.

An optional accessory kit is required to mount the front panel separately from the main unit.

KENWOOD COMMUNICATIONS CORPORATION

AMATEUR RADIO PRODUCTS GROUP

P.O. Box 22745, 2201 East Dominguez St., Long Beach, California 90801-5745

KENWOOD ELECTRONICS CANADA INC.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

# KENWOOD

# MIL-SPECS/TOP SPECS



Pure and simple, the concept reads like this: "rock-solid performance with straightforward operation, at an affordable cost". And Kenwood's TM-241A (144MHz) FM mobile transceiver symbolizes this perfectly. Great looks and rugged construction are just the beginning. The TM-241A's user-friendly controls make mobile QSOs a snap, and a powerful 50-watt amplifier lets you work simplex with confidence or hit those distant repeaters. Reception specs are equally impressive: intermod characteristics have been improved\* to reduce interference from strong adjacent band signals. Plus, there are 20 multi-function memory channels for programming combinations of frequency, sub-audible tone, and repeater offset.

So, if you're looking for true mobile performance, go back to the basics and reach for Kenwood's TM-241A.

## Features

- 144-148 MHz TX, 146-174 MHz RX
- 50 watts RF output
- 20 multi-function memory channels
- Large LCD display with illuminated keys
- Full band scan, programmable band scan, memory scan with channel lock-out
- Time-operated & carrier operated scan modes
- Built-in selectable CTSS tone encoder
- Auto repeater offset
- Tone alert with elapsed time indicator
- DTSS for selective calling and paging (with optional DTU-2)
- Time-out timer
- Auto power-off with warning beeper
- Meets U.S. military standards for shock and vibration (MIL-STD 810C/D/E)\*
- Modifiable for MARS/CAP use (permits required)

\*These specifications guaranteed for Amateur band only.

\*Current K&K2 versions with serial number 5080000 or later.

KENWOOD COMMUNICATIONS CORPORATION

AMATEUR RADIO PRODUCTS GROUP

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Repair Locations/Parts (800) KENWOOD Bulletin Board Service (BBS) (310) 761-8284

KENWOOD ELECTRONICS CANADA INC.

6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

Kenwood's TH-22AT/42AT: The Compact Solution!

144 MHz/450 MHz single band HTs

# More Power!



## Features

- 3-watt output from MOS FET power module and supplied 6-volt battery (TH-22AT: approx. 3 watts, TH42AT: approx. 2.5 watts), and 5-watt output with optional PB-34!
- Compact design: 2-3/16 x 4-5/8 x 1 in.
- Built-in DTMF keypad with monitor
- Built-in DTSS page system
- Large 1-7/16" speaker
- 41 EPROM channel memories (including 1 call channel)
- Multiple scan functions (VFO, call & memory)
- Carrier-operated & time-operated scan stop modes
- Tone alert with elapsed time indicator
- Battery-saver circuit and auto power-off function to extend battery life
- Selectable squelch configuration
- RF output power control (Hi/Low/EL)
- Built-in CTCSS encoder, optional TSU-8 decoder (any tone can be stored in any channel)
- User-friendly menu system to customize your operating preferences
- Easy to program and use
- Modifiable for MARS and CAP. Specifications guaranteed for amateur bands only. Permits required for MARS and CAP use
- Wide range of accessories to enhance operating convenience and enjoyment

Modifiable for MARS/CAP use.  
Permits required. Specifications  
guaranteed for Amateur band only.

93ARD-0829

Slim, compact, lightweight. These words describe the exterior of the new TH-22AT Series HTs. Rugged, innovative, sturdy. These words describe what is on the inside. Because, along with the beauty, this new series of HT has all the things you want in a portable communications package. Like a streamlined, easy to program interface, one touch controls and a simplified menu of functions that you can customize to suit your needs. Even a DTMF memory that stores five of your favorite 15-digit telephone numbers for autopatch use. Wide band receive - 136 to 173.99 MHz. A new, innovative microprocessor and final amplifier circuit enables a full five watts, while conserving battery power. (The supplied battery provides **3 watts**.) Easy mobile operation with optional PG-3H cable.

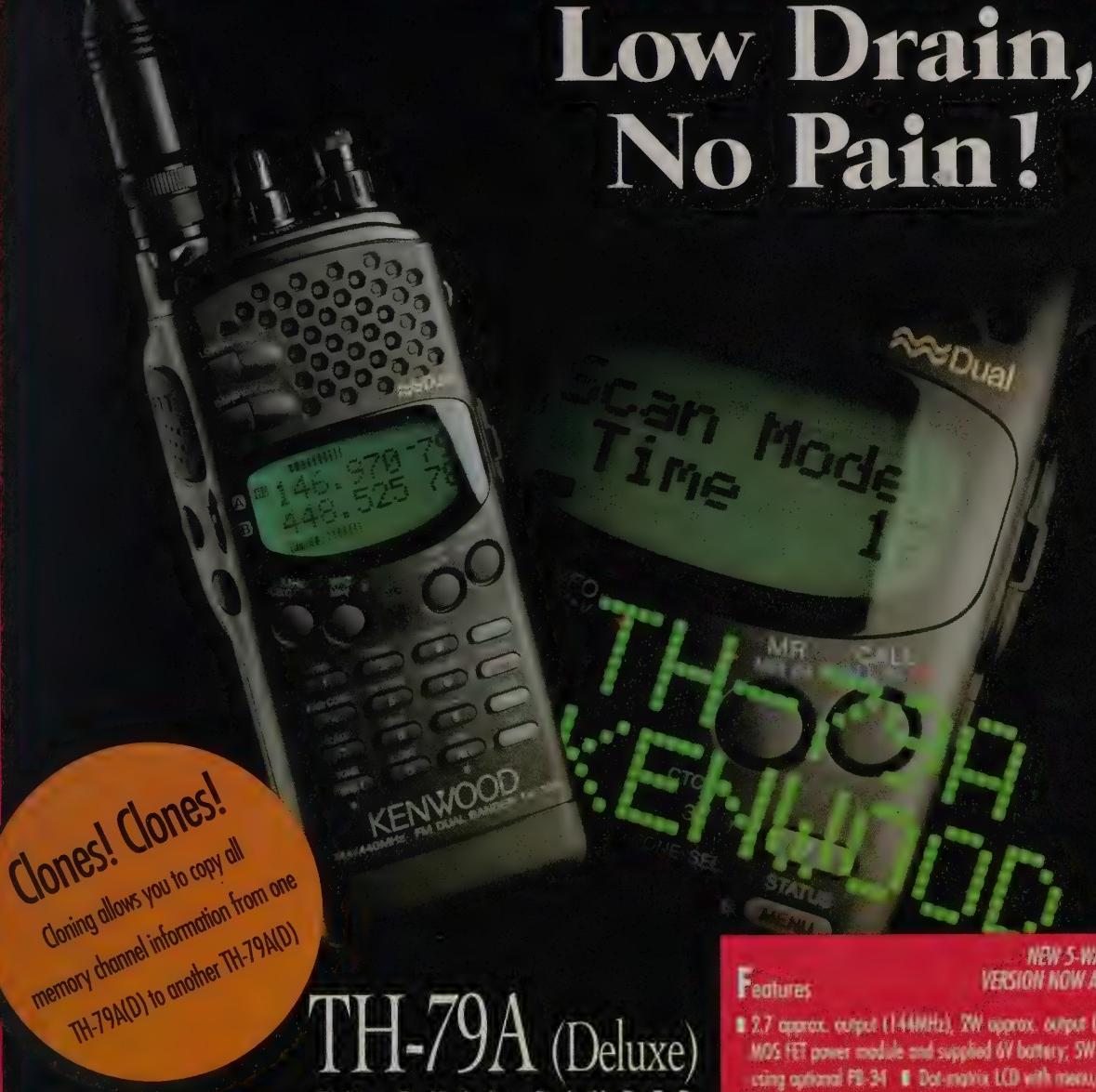
As always, a full line of accessories is available to enhance your operating enjoyment!

See your favorite Authorized Kenwood Amateur Radio Dealer for all the details!

KENWOOD COMMUNICATIONS CORPORATION  
AMATEUR RADIO PRODUCTS GROUP  
P.O. Box 22745, 2201 East Dominguez St., Long Beach, California 90801-5745  
KENWOOD ELECTRONICS CANADA INC.  
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

# KENWOOD

# Low Drain, No Pain!



## TH-79A (Deluxe) FM DUAL BANDER

Information at your fingertips. Everything you need to know about operating the new TH-79A(D) FM dual-bander (144MHz/440MHz) can be viewed in its unique dot-matrix LCD with alphanumeric display. No need for the manual. In addition to this innovative guide function, the TH-79A(D) sports a user-friendly menu system, providing easy access to the many powerful features of this slim-line handheld transceiver. Such as 82 non-volatile memory channels with ID, DTSS and page functions, and a DTMF memory function for autodial operation. Full-crossband duplex operation is available, as is the ability to receive two frequencies on the same band (VHF+VHF or UHF+UHF) simultaneously. And thanks to the FET power module, long hours of operation are possible on one charge. With the TH-79A(D), transceiver technology enters the 21st century.

NEW 5-WATT  
VERSION NOW AVAILABLE

### Features:

- 2.7 approx. output (144MHz), 2W approx. output (440MHz) from MOS FET power module and supplied 6V battery; SW approx. output using optional PB-34 ■ Dot-matrix LCD with menu/guide system
- 82 non-volatile memory channels with ID
- DTMF keypad with memory function
- DTSS (Dual-Tone Squelch System) with page
- Built-in CTSS tone encoder/decoder ■ Automatic band change
- Power-on call sign display ■ Auto repeater offset (VHF)
- Wide-range flexible antenna ■ Input overvoltage warning
- 3-position output power control
- Auto power-off and battery save function ■ Time-out timer
- Memory channel lock-out (scan mode)
- Cross-band repeater function ■ Page answer-back function
- Channel display function ■ Wideband receiver coverage, including AM receive on the aircraft band\* ■ Glare function
- Modifiable for MARCS/CAP use\*\*

\*Specifications guaranteed for Amateur bands only.

\*\*Permits required. Specifications guaranteed for Amateur bands only.

KENWOOD COMMUNICATIONS CORPORATION

AMATEUR RADIO PRODUCTS GROUP

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6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

# KENWOOD

# Explore New Frontiers!

Advanced technology moves Kenwood's HF rigs to the top.

## TS-450SAT/S • TS-690S

- 160m to 10m amateur band operation, 500kHz to 30MHz general coverage receiver • 6m amateur band and 50–54MHz general coverage receive (TS-690S)
- DDS (Direct Digital Synthesizer) & digital PLL system
- AIP (Advanced Intercept Point) system
- Automatic antenna tuner (built-in or optional)
- IF shift function tuning • AF notch filter
- Heavy duty cycle design • 100 memory channels



## TS-850SAT/S

- 160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver • DDS (Direct Digital Synthesizer) & digital PLL system • AIP (Advanced Intercept Point) system
- Automatic antenna tuner (built-in or optional)
- IF slope tuning • IF notch filter
- Electronic message keyer circuit with weighting control
- 100 memory channels • Digital recording system (optional)



## TS-950SDX

- 160m to 10m amateur band operation, 100kHz to 30MHz general coverage receiver
- Built-in DSP (Digital Signal Processor)
- MOS-type FET final section • Dual frequency receive
- 150W PEP output (SSB/CW/FSK/FM)
- DDS (Direct Digital Synthesizer) • Menu system
- AIP (Advanced Intercept Point) system
- Automatic antenna tuner • IF slope tuning • IF notch filter
- 100 memory channels • Built-in AC power supply



KENWOOD COMMUNICATIONS CORPORATION

AMATEUR RADIO PRODUCTS GROUP

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KENWOOD ELECTRONICS CANADA INC.

60770 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

# KENWOOD

# Kenwood's TS-50S: Awesome HF Versatility



## TS-50S HF TRANSCEIVER

For the Amateur Radio enthusiast, going "beyond bounds" is what it's all about. That's why Kenwood created the TS-50S, the world's smallest and smartest HF transceiver. The choice is yours: you can mount it in a vehicle, take it on a DX-pedition, or even install it permanently as a base station transceiver. Yet despite its size, the TS-50S provides a maximum output of 100W and the sort of sophisticated features normally found only inside a shack. Take for example the 100 memory channels for independent storage of transmit/receive parameters, the microprocessor-controlled DDS with innovative "fuzzy" control, and Kenwood's own AIP for superior dynamic range. There's also a powerful menu system, IF shift and CW reverse mode for interference reduction, TF-SET, and a noise blanker--plus everything you need for split-frequency operations. So, if you want HF operation beyond bounds, check out the TS-50S at your favorite authorized Kenwood Amateur Radio Dealer today!

### Features

- 500kHz-30MHz general coverage receiver
- DDS( Direct Digital Synthesizer) with fuzzy logic control
- Large LCD panel with digital bar meter
- Auto-mode capability
- Menu system
- AIP (Advanced Intercept Point)
- Switchable AGC Circuit (SLOW/FAST)
- All-mode squelch
- CW reverse mode
- Full-break-in and semi-break-in
- 20dB attenuator
- Multi-function microphone supplied
- RF output power control (100W, 50W, 10W)
- Optional 500Hz CW filter (YK-107)
- Optional external antenna tuner(AT-50)
- Optional computer interface (IE-100)

KENWOOD COMMUNICATIONS CORPORATION

AMATEUR RADIO PRODUCTS GROUP  
P.O. Box 22745, 2201 E. Dominguez St., Long Beach, California 90801-5745

KENWOOD ELECTRONICS CANADA INC.

8010 Keele Road, Mississauga, Ontario, Canada L5T 1S8

# KENWOOD

# IC-738 THE NEXT GENERATION



Don't let your contest results depend on "previous generation" technology. Get the Dyer's advantage with the "Next Generation" IC-738.

## FEATURES

- New DDS Technology
- 100W (SSB, CW, FM)  
40W AM Standard
- AT-170 High Speed Automatic Antenna Tuner (160-10 Meters)
- Two Antenna Connectors (Front Panel Switchable)
- 4 Function Meter (SWR/ALC/PO/S)
- VOX
- RF Gain
- Pass Band Tuning
- Notch Filter
- 10 Electronic Scratch Pad Memories
- 101 Memory Channels (10 split, 2 scan edge)
- RIT/ΔTx Functions
- Quick Split w/Simultaneous Display
- Speech Compressor
- Attenuator (20 db)
- Pre Amplifier (20 db)
- Double Band Stacking Registers
- Set Mode Menu to Customize Operation
- Menu Selectable CW Filters
- Noise Blanker
- Fast/Slow AGC
- High Dynamic Range/Low Distortion
- Built-in Electronic Keyer
- Direct Keyboard Entry
- Hand Microphone Included (HM-36)
- Computer Control Port (CI-V)

## NEXT GENERATION TECHNOLOGY

### Next Generation Circuitry

**DDS (Direct Digital Synthesis)** ICOM's unique DDS IC is used for the LPL Circuit. High tech and compact, the PLL unit improves frequency resolution to 1 Hz step. You'll experience an analog feeling of the tuning, faster PLL lockup times, improved phase noise blocking and high dynamic range.

### Next Generation Tuner

**AT-170 Advanced Tuner** Preset memories, in 100kHz steps, provide very high speed tuning. "Automatic re-tune" turns the AT-170 on, and tunes, when SWR exceeds 1.5:1. "Through inhibit" permits tuning at SWR conditions up to 3:1 (when your antenna can't be tuned to 1.5:1). "Sensitive/Normal" gives you the choice of minimum possible SWR or 1.5:1. This eliminates tuning each time you transmit, unless desired.

### Next Generation Duty Cycle

**100% Full Duty** The final power amplifier outputs a stable 100 W in SSB, CW and FM modes. The aluminum die cast frame, large heatsink and innovative twin cooling fan system stabilize the PA circuit to ensure 100% duty cycle operation.

### Next Generation Frequency Management

**Quick Split Operation** Pre-programmable offsets, simultaneous display of Tx and Rx frequencies and XFC (Transmit Frequency Change) give you a competitive edge when calling Dx stations operating split frequencies. "Split Lock" permits changes in your transmit frequency while protecting your receive frequency against accidental changes.

### Next Generation CW Operation

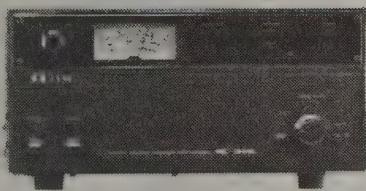
**CW Contest Package** Our built-in electronic keyer with separate key jack, full break-in (QSK) and separate jacks for an extended CW key or memory keyer, make a competitive package for CW contesting. For example, use a memory keyer (or TNC with CW capability) to make contacts easily, then use your paddle for normal operation.

ICOM America, Inc. Corporate Headquarters 7380 118th Ave. N.E., Bellevue, WA 98004

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# AMPLIFIERS

**ICOM**



### IC-2KL

Icom's solid-state linear amplifier offers broadband tuning on 160-15 meters. No need to tune the amp as you go from band to band since automatic band switching information is provided directly from all Icom HF radios. A switch on the front of the amp can be used for band selection with other manufacturer's exciters. The 2KL requires 50-80 watts of drive. Nominal output in all modes is 500 watts. It is supplied with an external power supply, the IC-2KLP, which operates on 110 (factory wired) or, with internal modification, 220 VAC.

### IC-4KL

This HF amp features: 1000 watts out for one hour at full duty cycle, separate controller and amp, automatic high speed antenna tuner, full break-in operation, built-in 40 volt 60 amp power supply with automatic selection for 110 (factory wired) or 220 VAC. Comes with handles for rack mounting. 220 VAC is recommended.

**MIRAGE**

### VHF / UHF Amplifiers

Mirage designed their amps to the highest specifications to provide reliability at an affordable price. The new GaAs-FET preamps provide a gain figure of more than 25 dB with a noise figure of less than .6 dB. Please see the chart on page 78 for detailed specs and model numbers. All the amps have a 5 year warranty and 1 year on the RF power transistors.

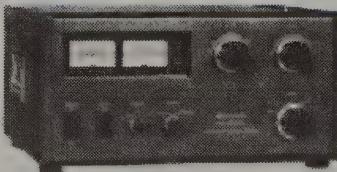
**rfconcepts**

### VHF / UHF Amplifiers



For that "extra punch" needed for distant contacts, many RF Concepts models feature GaAs-FET receiver preamps for weak signals. The amplifiers are all mode, solid-state and made in the USA. Each features a one year warranty on parts and labor and 6 months on the RF power transistors. See pages 51 and 77 for more details.

**KENWOOD**



### TL-922A

Kenwood's amplifier uses two Eimac® 3-500Z tubes to provide maximum legal power. The amp covers 160-15m and is user modifiable for 10 meter operation. It requires 80 watts to produce full output power. The amp uses an AB2 class grounded grid circuit. The AC power supply is built-in and can be set for 110 or 220 VAC. Use this amp with all Kenwood HF models and most from other manufacturers. There is interlock protection on the covers and the amp is protected with a blower turn-off delay circuit. It can be shipped to many areas by Roadway Package Service or UPS (to some areas). Otherwise, the TL-922A must be shipped by truck or air freight due to its weight.

**YAESU**



### FL-7000

Yaesu's solid-state amplifier requires less than 100 watts to drive and produces 600 watts output power. It comes with a built-in automatic antenna tuner. The built-in power supply operates on 100-234 VAC, but an internal modification is required to change the voltage. The duty cycle on SSB is 30 minutes, or, for full carrier, 2 minutes. The amp obtains its band data directly from the Yaesu exciter and band changes are automatic. Band data can be selected from the front panel so the amp can be used with other manufacturer's exciters. The amp comes with an interface cable for the FT-757. Optional cables are required for the FT-767, FT-990, FT-1000 (E767), FT-890 (CT-11) or the FT-980 (E980).

### VAN GORDEN Patch Cables

Use the Van Gorden Patch Cables to connect your amp to your rig. They are constructed from RG-8X coax with silver teflon PL-259 connectors. Use the longer cables for those antenna runs.

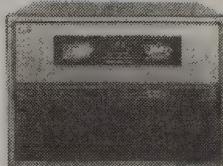
Model	Length (feet)	HRO Price
8X-1.5ST	1.5	\$6.99
8X-3ST	3	\$8.99
8X-6ST	6	\$11.99
8X-12ST	12	\$14.95
8X-18ST	18	\$18.95
8X-50ST	50	\$29.95
8X-100ST	100	\$49.95

**JRC**

**JRL-  
2000F**

**\$4899.95**

Suggested List  
Call for Quote



The JRL-2000F has solved the problems of many conventional linear amplifiers: troublesome manual operation, fan noise, low margin of output and high IMD. The JRL-2000F is a heavy duty amp using 48 MOSFET for low distortion, high speed automatic antenna tuner, high efficient switching power supply, automatic antenna selector, and wireless remote control unit. Provides 1 kW output with a maximum input of 100 watts. Shipped by truck or FEDEX only. Shipping cost extra.

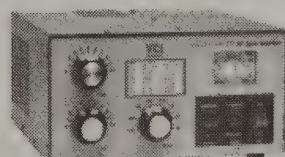
**Valor  
VECTRONICS**

### VECTOR 500

**\$1395.95**

Suggested List—Call For Quotes

The Vector 500 is an AB2 linear amp using 4 811-A tubes. Provides 1000 W PEP input with 60 to 80 W drive. It has fan cooling and covers 160-12 M. 10 meters is available with user modification.



### HF600-QSK

**\$1995.95**

Suggested List—Call For Quotes

The HF600-QSK is a one stage, class AB2, linear amplifier using a glass envelope, high performance Amperex 8802 power triode tube. It is a completely self contained table top unit capable of 1000 watts PEP output.

- SSB, CW, RTTY, AMTOR, AM, FM or SSTV operation.
- Covers 1.8 to 24 MHz including WARC and MARS frequencies. Licensed amateurs may modify to 10 meters.
- High speed vacuum relay for CW, AMTOR and RTTY.
- Adjustable ALC.
- 60 watts drive for full output.

# AMERITRON



## AL-800

\$1595

Suggested List—Call For Quotes

## AL-800H

\$2295

Ameritron has two new linear amplifiers with Eimac 3CX800A7 tubes. The AL-800 uses a single tube providing 1200 watts PEP. The AL-800H used two tube as provides 1500 watts output. The amps cover 160-15 meters and are user modifiable for 12 and 10 meters. They offer most of the quality features of the Ameritron family of amplifiers.

*Pending receipt of FCC type acceptance, the AL-800 and AL-800H may not be and are not offered for sale.*



## AL-80B

\$1195.95

Suggested List—Call For Quotes

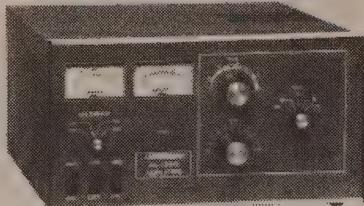
Ameritron's AL-80B gets a full kW PEP output from a compact desktop linear that plugs into a 120 VAC outlet. You get 850 watts output on CW and 500 watts output on RTTY. It covers all bands 160-15 meters including WARC and MARS, and it is user modifiable for 10/12 meters with the proper license. The amp has an extra heavy duty power supply, Eimac® 3-500Z tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual cross-needle meters, QSK compatibility, two-year warranty, and it is made in the USA.

The AL-80B's also features:

- Dynamic ALC™ gives high-level low-distortion RF processing.
- Instantaneous RF Bias™ completely turns off the Eimac® 3-500Z tube (except filaments) between words and dots and dashes.
- Heavy Duty Power Supply with a 25 pound transformer using a high silicone steel core, computer grade capacitors, heavy duty bleeders and ten 3 amp, 1000 V power rectifiers.
- Multi-Voltage Power Transformer to select from 14 different primary voltages from 90-140 VAC and 205-250 VAC.
- QSK Operation with the optional external QSK-5 PIN diode T/R switch.
- Step-Start Inrush Protection™ stops damaging in-rush current.
- Dual Illuminated Cross-needle Meters monitor four separate functions.
- Tuned Input Circuit with a 50 ohm broadband Pi-network.

## Legal Limit Linears

*These rugged linears use a super heavy duty hypersil® power supply capable of 2500 watts!*



## AL-1500

Ameritron's super power amplifier, AL-1500 uses the herculean Eimac® 8877 ceramic tube. It is so powerful that 65 watts drive gives you full legal output, and it is just loafing. The power supply is capable of 2500 watts PEP. Suggested List \$2695.95

## AL-82

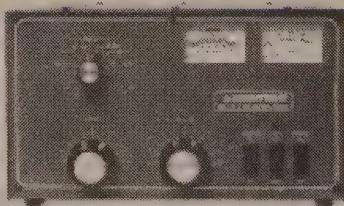
The AL-82 linear gives you full legal output using a pair of Eimac® 3-500Z tubes. Some competing linears using dual 3-500Zs do not give you 1500 watts because their lightweight power supplies are unable to drive the tubes to their full potential. Suggested List \$2095.95

## AL-1200

Get ham radio's toughest tube with Ameritron's AL-1200—the Eimac® 3CX1200A7. It has a 50 watt control grid dissipation—12 times tougher than the 4 watt rating of the 3CX800A7. You get the same full legal output as you get from a pair of 3CX800A7s.

Suggested List \$2195.95

## 600 Watts Out



## AL-811 (H)

These low-cost HF amps give you plenty of power to burst thru QRM. Both desktop linears are so compact they will slip right into your ham shack and plug into your nearest 120 VAC outlet. You get three (or four) tough 811A transmitting tubes plus an extra heavy duty power supply, all HF band coverage, pressurized ventilation, tuned input, dual illuminated meters, adjustable ALC, operate/stand-by switch, transmit LED, UPS shippable.

AL-811 3 tube model / 600 watts output.

Suggested List \$649.95

AL-811H 4 tube model / 800 watts output.

Suggested List \$795.95

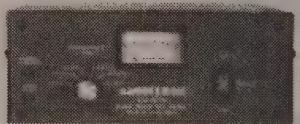
## Solid State HF Amps



## ALS-600

Ameritron now has a no-tune solid-state FET amplifier for HF base station use. It features no tuning, 600 watts output, continuous 1.5-22 MHz coverage, instant band switching and is fully SWR protected. Includes an operate/standby switch; front panel ALC control; LED indicators for transmit, ALC SWR; illuminated cross-needle SWR/wattmeter. The included separate ALS-600PS power supply comes wired for 120 VAC.

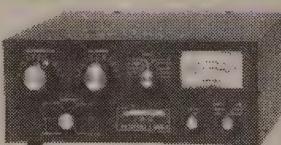
Suggested List \$1299.95



## ALS-500M

For mobile, 13.8 VDC operation, this is the amplifier. It features 500 watts output with continuous 1.5-22 MHz coverage. Remote ON/OFF control. Optional 10/12 meter kit. Suggested List \$799.95

## Antenna Tuner

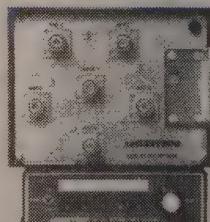


Ameritron—the high powerspecialists—brings you a tuner designed for legal limit amplifiers. Heavy duty sil-

ver plated bandswitch virtually eliminates switch failure. High power transmitting capacitors. 1.8-30 MHz. Peak reading SWR/wattmeter. 6 position antenna switch. Selectable 1:1 or 4:1 balun. Meter lamps require 12 VDC. Suggested List \$399.95

## Remote Coax Switches

RSC-8V, DC-UHF 5 kW Coax Switch. Replace 5 coax feedlines with one with this Remote Coax switch. Weatherproof box mounts outdoors on your tower or mast. Attractive control unit sits on your operating desk. Low SWR to 450 MHz. Low loss. Rated at 5 kW to 30 MHz, 1 kW at 150 MHz. Sugg List RCS-8V \$149.95; RCS-8VN with "N" connectors \$169.95.



RCS-4 is a 4 position HF coax switch. It is similar to the RCS-8V. No control cable is required. 2500 watts PEP, Sugg. List 134.95.

HRO will provide 10 meter modification information to amplifier customers upon receipt of a copy of your valid, current amateur radio license.

# AMPLIFIERS

Manufacturer	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre-amp	Connector	Wgt	LIST Price
Ameritron	AL-1500	160-15 M*	SSB, CW	65 W	1500+ W	220 VAC	15 A	-	SO-239	50 lbs#	\$2,695.95
	AL-1200	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	-	SO-239	50 lbs#	\$2,195.95
	ALS-500M	160-15 M*	SSB, CW	100 W	500 W	13.8 VDC	80 A	-	SO-239	7 lbs	\$799.95
	ALS-600	160-15 M*	SSB, CW	100 W	600 W	110/220 VAC	12 A 110V	-	SO-239	13 lbs#	\$1,299.95
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	-	SO-239	54 lbs	\$1,195.95
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	-	SO-239	67 lbs	\$1,595.00
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	-	SO-239	69 lbs	\$2,295.00
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	-	SO-239	40 lbs	\$649.95
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	-	SO-239	41 lbs	\$795.95
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	-	SO-239	52 lbs#	\$2,095.95
Icom	IC-2KL	160-15 M*	SSB, CW	100 W	500 W	110/220 VAC	20 A 110V	-	SO-239	45 lbs	\$2,710.95
	IC-4KL	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	18 A 220V	-	SO-239	80 lbs	\$9,000.95
JRC	JRL-2000F	160-12 M*	SSB, CW	100 W	1000 W	110/220 VAC	2.5 kVA	-	SO-239	62 lbs	\$4,899.95
Kenwood	TL-922A	160-15 M*	SSB, CW	100 W	1500 W	110/220 VAC	20/10 A	-	SO-239	83 lbs	\$2,099.95
Mirage	A-1015-G	50-54 MHz	All	10 W	150 W	13.8 VDC	20-25 A	-	SO-239	5 lbs	\$389.95
	A-1035-G	50-54 MHz	All	10 W	350 W	30 VDC	18-22 A	-	SO-239	5 lbs	\$653.95
	B-23-G	144-148 MHz	All	2 W	30 W	13.8 VDC	5 A	20 dB	SO-239	2 lbs	\$177.95
	B-215-G	144-148 MHz	All	2 W	150 W	13.8 VDC	20-25 A	25 dB	SO-239	5 lbs	\$377.95
	B-108-G	144-148 MHz	All	10 W	80 W	13.8 VDC	20-25 A	10 dB	SO-239	3 lbs	\$227.95
	B-1016-G	144-148 MHz	All	10 W	160 W	13.8 VDC	20-25 A	10 dB	SO-239	5 lbs	\$377.95
	B-2516-G	144-148 MHz	All	25 W	160 W	13.8 VDC	20-25 A	10 dB	SO-239	5 lbs	\$318.95
	B-2530G	144-148 MHz	All	25 W	300 W	13.8 VDC	48 A	-	SO-239	15 lbs	\$687.95
	B-2560G	144-148 MHz	All	30 W	300 W	28 VDC	42-52 A	-	SO-239	15 lbs	\$1,094.95
	B-5060G	144-148 MHz	All	50 W	600 W	28 VDC	42-52 A	-	SO-239	15 lbs	\$1,094.95
	B-5016-G	144-148 MHz	All	50 W	160 W	13.8 VDC	20-25 A	-	SO-239	5 lbs	\$318.95
	C-22-G	220-225 MHz	All	2 W	20 W	13.8 VDC	5 A	-	SO-239	2 lbs	\$177.95
	C-1012-G	220-225 MHz	All	10 W	120 W	13.8 VDC	18-20 A	-	SO-239	5 lbs	\$357.95
	C-106-G	220-225 MHz	All	10 W	60 W	13.8 VDC	10-12 A	-	SO-239	4 lbs	\$238.95
	C-211-G	220-225 MHz	All	2 W	110 W	13.8 VDC	18-20 A	-	SO-239	5 lbs	\$357.95
	C-2512-G	220-225 MHz	All	25 W	120 W	13.8 VDC	16-18 A	-	SO-239	5 lbs	\$334.95
	D-26N	420-450 MHz	All	2 W	60 W	13.8 VDC	12 A	-	N type	2 lbs	\$283.95
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A	-	N type	5 lbs	\$414.95
	D-3010N	420-450 MHz	All	30 W	100 W	13.8 VDC	20 A	-	N type	6 lbs	\$383.95
RF Concepts	2-23	143-149 MHz	All	2.5 W	(2 in) 30 W	13.8 VDC	5 A	15 dB	SO-239	2 lbs	\$149.95
	2-70	143-149/430-450 MHz	FM	.5-7 W	(5in)30 / 20 W	13.8 VDC	5 A	-	BNC	3 lbs	\$259.95
	2/70G	143-149/430-450 MHz	FM	.5-7 W	(5in)30 / 20 W	13.8 VDC	6 A	15/10 dB	BNC	3 lbs	\$289.95
	2/70H	144-148/438-450 MHz	FM	20-50 W	200 / 125 W	13.8 VDC	40 A	-	BNC	11 lbs	\$799.95
	2-315	143-149 MHz	All	5-50 W	(30 in) 150 W	13.8 VDC	22 A	18 dB	SO-239	5 lbs	\$319.95
	2-417	143-149 MHz	All	.2-50 W	(45 in) 170 W	13.8 VDC	22 A	18 dB	SO-239	5 lbs	\$319.95
	3-22	220-225 MHz	All	.2-5 W	(2 in) 20 W	13.8 VDC	4 A	15 dB	SO-239	2 lbs	\$149.95
	3-112	220-225 MHz	All	.2-15 W	(10 in) 120 W	13.8 VDC	22A	18 dB	SO-239	5 lbs	\$349.95
	3-211	220-225 MHz	All	.2-5 W	(2 in) 110 W	13.8 VDC	22A	18 dB	SO-239	5 lbs	\$349.95
	3-312	220-225 MHz	All	.2-30 W	(30 in) 120 W	13.8 VDC	20 A	18 dB	SO-239	5 lbs	\$329.95
	4-310	420-450 MHz	All	.2-40 W	(30in)100 W	13.8 VDC	20 A	12 dB	N type	5 lbs	\$359.95
	4-110	420-450 MHz	All	.2-15 W	(10 in) 100 W	13.8 VDC	22 A	12 dB	N type	5 lbs	\$389.95
	4-32	420-450 MHz	All	.2-5 W	(3 in) 20 W	13.8 VDC	4 A	12 dB	SO-239	2 lbs	\$159.95
	VHF-1-60	144-148 MHz	FM	1-8 W	(1 in) 60 W	13.8 VDC	14 A	-	SO-239	7 lbs	\$249.95
SGC	SG-500	160-12 M*	SSB,CW		500 W						\$999.95
Vector Electronics	HF600QSK	160-12 M*	All	60 W	1000 W	110/220 VAC		-	SO-239	40 lbs	\$1,999.95
	VECTOR 500	160-12 M*	SSB,CW	60-80 W	1000 W	110/220 VAC	12:00 AM	-	SO-239	25 lbs	\$1,395.95
Yaesu	FL-7000	160-15 M*	SSB, CW	100 W	600 W	110/220 VAC	20/10 A	-	SO-239	60 lbs	\$2,459.95

\* Owner modifiable for 10 meters # Add 35 pounds for transformer shipped in separate package.

## VHF / UHF Preamps

### AMPIRE

Amire's low noise pre-amplifiers for VHF and UHF automatically switch from receive to transmit when the transmitter is keyed. In receive mode they feature a helical filter with a narrow bandpass.



In case of power loss, the relay will drop out of the transmit mode.

- Model 146: 2 meters, 19 dB gain, .75 dB noise. List Price \$179.95

- Model 146 OS: 2 meters for Oscar operation. List Price \$179.95

- Model 440: 430-440 MHz or 440-450 MHz, 16 dB gain, .75 dB noise. List Price \$209.95

Please call for quotes.

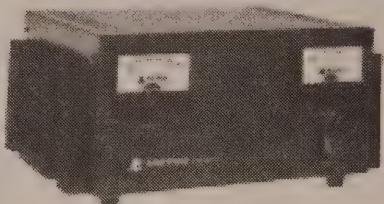
### LANDWEHR

#### Pre-Amps

Landwehr's affordable, high quality, mast-mounted preamps for the amateur come in three models: 2 meters, 220 MHz and 440 MHz. The GaAs-FET design provides gains up to 18dB with a low noise figure. Features include type-N connectors and automatic T/R switching up to 150 watts. The preamp is very popular with satellite and "weak signal" enthusiasts.

# POWER SUPPLIES

**ASTRON**  
CORPORATION



Astron's solid-state electronically regulated Power Supplies have fold-back current limiting to protect from excessive current. Heavy duty heat sink. Output voltage: 13.8 VDC + -.05 volts. 220 V power supplies available on special order at slightly higher price.

**RS-A Series** Standard power supply with on / off switch. Voltage may be adjusted internally.

**RS-M Series** Power supply with front meters. One is for voltage and the other current.

**VS-M Series** Power supply with separate volt and amp meters. Adjustable output voltage from 2-15 volts.

**RM Series** 19" x 5 1/4" rack-mount power supplies available with or without meters and may be variable. The newest is the RM-60 with and without meters.

**SL Series** Slim Line series for a low profile installation.

## Power Supplies

Manufacturer	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs	Sugg. List
<b>Astron</b>	RS-4A	3 A	4 A	3.75	6.5	9	5	\$51.95
	RS-7A	5 A	7 A	3.75	6.5	9	9	\$68.95
	RS-10A	7.5 A	10 A	4	7.5	10.75	11	\$84.95
	RS-12A	9 A	12 A	4.5	8	9	13	\$99.95
	RS-20A	16 A	20 A	5	9	10.5	18	\$121.95
	RS-35A	25 A	35 A	5	11	11	27	\$197.95
	RS-50A	37 A	50 A	6	13.75	11	46	\$285.95
	RS-70A	57 A	70 A	6	13.75	13.75	48	\$339.95
	RS-12M	9 A	12 A	4.5	8	9	13	\$159.95
	RS-20M	16 A	20 A	5	9	10.5	18	\$144.95
	RS-35M	25 A	35 A	5	11	11	27	\$204.95
	RS-50M	37 A	50 A	6	13.75	11	46	\$314.95
	RS-70M	57 A	70 A	6	13.75	12.12	48	\$372.95
	RM-35A	25 A	35 A	5.25	19	12.5	38	\$309.95
	RM-50A	37 A	50 A	5.25	19	12.5	50	\$326.95
	RM-60A	50 A	55 A	7	19	12.5	63	\$422.95
	RM-35M	25 A	35 A	5.25	19	12.5	38	\$318.95
	RM-50M	37 A	50 A	5.25	19	12.5	50	\$354.95
	RM-60M	50 A	55 A	7	19	12.5	63	\$467.95
	VS-20M	16 A	20 A	5	9	10.5	20	\$170.95
	VS-35M	25 A	35 A	5	11	11	29	\$238.95
	VS-50M	37 A	50 A	6	13.75	11	46	\$330.95
	SL-11A	7 A	11 A	2.75	7.62	9.95	11	\$90.95
	SL-15R	12 A	15 A	2.75	7.62	9.95	14	\$119.95
<b>ICOM</b>	PS-30	20 A	25 A	4.3	9.5	11.8	15.6	\$470.95
	PS-35	17 A	20 A	*	*	*	6	\$239.95
	PS-55	15 A	20 A	4.2	7.2	10.5	17.5	\$345.95
<b>Kenwood</b>	PS-31	20 A	22.5 A	4.7	6.9	12.2	17.4	\$219.95
	PS-33	20.5 A	22.5 A	6.81	3.78	11.66	15.4	\$239.95
	PS-52	22.5 A	22.5 A	4.25	7	12.25	16	\$289.95
	PS-53	22.5 A	22.5 A	6.81	3.78	11.66	15.2	\$269.95
<b>Yaesu</b>	FP757HD	15 A	20 A	3.7	9.5	9.3	3.2	\$334.95
	FP-800	20A	20A	3.66	9.4	9.3	15	\$309.95

\*Internal Supply (220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

# KENWOOD

Kenwood's four power supplies go with their HF, VHF and UHF radios. All power supplies are 110 VAC only and some are UL approved. The PS-31 is designed to go with the TS-790A. The PS-33 and the PS-53 are especially for the TS-450S and TS-690S. The PS-52 is Kenwood's largest. It is designed for the TS-850 but it will run all Kenwood 12 VDC radios.

**O**  
**ICOM**

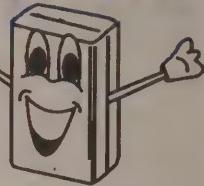
Icom has two external power supplies to use with their radios which have 12 VDC power requirement. The PS-55 is a standard duty supply with a cabinet styling to match IC-735/728/729. The PS-30 is a heavy-duty station supply that can operate several base station units. The PS-35 is an internal supply designed to be installed in the IC-751 or selected VHF/UHF base transceivers.

**YAESU**

Yaesu has two power supplies designed primarily to be used with their HF radios. The FP-757HD is a heavy-duty supply with a built-in speaker and cabinet styling to match the FT-757GX. The FP-800 is designed to match the FT-890 and also contains a built-in speaker.

# PERIPHEX

**Super  
Battery  
Packs**



## Made for Hams by Hams

Periphex makes a collection of Super Battery Packs for all the popular handheld radios. HRO now stocks these packs to provide you superior battery performance at an affordable price.

The Super models offer additional operating time when compared to manufacturer provided batteries. Depending on the battery model and radio, an additional 15% to 100% operating time can be achieved.

Examine the tables below and select the pack which best suits your needs.

## Most Alinco Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
EBP-22S	12	800	\$65.95
EBP-24S	7.2	1500	\$62.95

## Most Icom Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
BP-7S	13.2	1200	\$65.95
BP-8S	9.6	1200	\$65.95
BP-83S	7.2	750	\$43.95
BP-84S	7.2	1400	\$63.95
BP-85S	12	800	\$76.95

## Most Kenwood Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
PB-7S	7.2	1400	\$59.95
PB-8S	12	800	\$59.95
PB-13S	7.2	1200	\$49.95
PB-14S	12	400	\$60.95

## Most Yaesu Radios

Model	Volts (DC)	Capacity (mah)	HRO Price
FNB-12S	12	600	\$54.95
FNB14S	7.2	1400	\$59.95
FNB-26S	7.2	1400	\$65.95
FNB-27S	12	800	\$65.95

# HANDHELD BATTERY PACKS

## INNOVA

Portable Power for Serious HT Users

### 6.5AH DC PowerPack

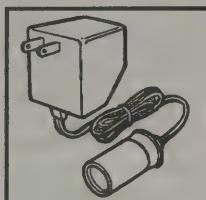
Innova's DC PowerPack provides DC power to run most HTs up to 15 times longer than replacement nicad packs. The sealed lead acid battery is rechargeable up to 1,000 times and delivers a full 6.5 amp hours of 12 VDC power to boost HTs to their maximum rated output.



The unit uses a standard cigarette lighter socket so all you need is your HT and its dedicated DC adapter. The DC PowerPack can easily run any other 12 VDC accessory up to 10 amps. It comes complete with a built-in handle and shoulder strap, overcharge protection, DC charger for charging in a vehicle and LEDs that monitor the battery status. HRO Model "Power Pack" HRO Price \$69.95

### AC Charger

Recharges the 6.5 AH DC PowerPack at home in 8 to 10 hours. HRO Model "AC CHGR" HRO Price \$14.95

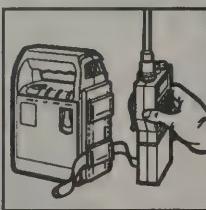


### 3.0AH DC Powerpack

This model is a smaller, more compact DC PowerPack that provides a full 3 amp hours of 12 VDC power. It has a sealed lead acid battery that is rechargeable up to 1,000 times. It can boost most HTs to their maximum rated output while lasting up to seven times longer than replacement nicad packs.



The unit comes with a convenient shoulder strap, AC charger for recharging at home, 10 amp fuse protection, and a standard cigarette lighter socket output for powering HTs (dedicated DC adapter required) or any other 12 VDC accessory. HRO Model "Power Pack Small" HRO Price \$59.95



### HT Clip Holder

Specially designed to securely mount on any Innova DC PowerPack modular side mounts. Fully adjustable to hold a variety of HT sizes. HRO Model "HT CLIP" HRO Price \$8.95

## QUANTUM INSTRUMENTS

### All-day Power For Your Handheld!



The Quantum Ham Battery (model QHB) can power most models of handi-talkies 3 to 5 times longer than nicad packs. The battery delivers 12 volts for a 5 W output from most HTs.

The Quantum Ham Battery is modular and adaptable to many types of equipment. The power pack contains the rechargeable battery and electronics. Adapters with coiled cords connect the high performance power pack to an HT or other equipment.

One Ham Battery can be used for different equipment by switching adapters. This feature means a user need purchase only a new adapter when upgrading or changing to another HT instead of purchasing a whole new battery and chargers.

The Ham Battery is housed in a compact leatherlike case which can be belt-attached or hooked to a shoulder strap. Inside is a powerful 2.1 amp hour, high rate 12 volt rechargeable battery. The cells are sealed lead types. These can be recharged fully and reliably to 100% capacity at all times. The three-LED "fuel gauge" lets you know how much of the battery charge remains.

Included with the Ham Battery are a built-in automatic circuit breaker, recharge indicator and regulator. A charger is supplied with the battery. There are two output sockets for powering two pieces of equipment at once. Suggested List Price \$150.95

### Quantum Battery Adapters and Accessories

Model	Description	HRO Price
HB3	Icom "S" Series, IC-24AT, W2A, IC-2SRA, IC-4SRA, IC-R1.	\$35.95
HB4	Icom "A" & "G" series except IC-24AT.	\$35.95
HB5	Kenwood TH-205AT, 215A, 225A, 315A, 415A.	\$35.95
HB6	Kenwood TH-25, 26AT, 45AT, 46AT, 75A, 77A.	\$32.95
HB7	Yaesu FT-103R, 109R, 203R, 209R/RH, 703R, 709R, 727R.	\$35.95
HB9	Yaesu FT-23R, 33R, 411, 470, 73R, 811, 911.	\$35.95
HB10	Vehicle socket adapter.	\$24.95
HB11	Alinco DJ-160, 460, 560T/E.	\$45.95
HB13	Icom P Series IC-P2 / 3 / 4AT.	\$45.95
HB16	Kenwood TH-27 / 28 / 47 / 48A / 78A, Yaesu FT-416 / 816.	\$45.95
HB19	Yaesu FT-26 / 76 / 415 / 815 / 530.	\$45.95
HB20	DC Plug Set.	\$28.95
HB21	Alinco DJ-F1T, DJ-F1T-HP.	\$45.95
HB31	Alinco DJ-580T / DJ-180T.	\$45.95
HB36	Vehicle fast charger.	\$81.95
RA17	AC adapter for HB36.	\$39.95
HB0	Coiled power cord for QHB.	\$21.95
HB40	Quantum shoulder strap.	\$14.95
HBCA-4	Standard C228 / 528 / 628A.	\$45.95
HBCA-5	Standard C168 / 468A.	\$45.95

# SWR & WATT METERS

# BIRD

## Model 43

### Directional Wattmeter

The low-cost Model 43 ThruLine Directional Wattmeter has an unequalled history of reliability, durability and flexibility. It is a thoroughly engineered, portable, insertion-type instrument that measures both forward and reflected CW power in coaxial transmission lines. It gives accurate RF power flow readings under any load conditions.

Model 43 is comprised of a line section and a direct-reading 3 scale meter housed in a rugged, corrosion-resistant aluminum case. Quick Change (QC) type connectors and a full range of plug-in measuring elements are available. (See the chart for the most popular elements. Others are available on special order.) Two extra elements can be stored in the housing, one on each side.

The shock-mounted 30-microampere meter has 3 expanded scales of 25, 50 and 100 unit calibrations. It normally comes with type SO-239 QC connectors installed. Other popular connectors are available. Please specify at time of purchase.

### PEP Modification Kit

#### Model 4300-400

Your existing Bird 43 meter can be upgraded to a PEP reading meter. Order the 4300-400 modification kit. It is easy to install—procedures are included for most versions of the Model 43.

### Accessories

The most popular wattmeter accessories are:

- CC-1 Meter case.  
Space for up to 6 elements.
- EC-1 Element case.  
Space for up to 12 elements.



### Model 43P Peak Reading Wattmeter

The Model 43P is a peak-reading version of the popular Model 43. The peak reading option has been installed in one of the spare element holes on the side of the meter.

The meter reads CW with the switch out and PEP when the switch is pushed in. Requires a 9 VDC battery. The frequency range and power levels are determined by the element used. No special elements are required. The meter comes with SO-239 QC connectors installed. Others are available.



### RF Power Meter RFM-003 / 005



Flick a switch to measure peak or average power. Full-wave detection system shows true PEP output. Adjustable hold time captures peaks. Separate panel meter for fully automatic SWR indicator (.5 W - 5 kW). Separate calibrated remote sensors used to cover most all frequencies and power levels.

**RFM003** reads 3 KW full scale.  
Suggested List Price \$375.95

**RFM005** reads 5 KW full scale.  
Suggested List Price \$395.95

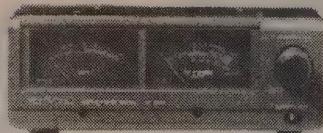
### Bird Standard Elements

Power	2-30 MHz	25-50 MHz	50-125 MHz	100-250 MHz	200-500 MHz	400-1000 MHz
5 watts		5A	5B	5C	5D	5E
10 watts		10A	10B	10C	10D	10E
25 watts		25A	25B	25C	25D	25E
50 watts	50H	50A	50B	50C	50D	50E
100 watts	100H	100A	100B	100C	100D	100E
250 watts	250H	250A	250B	250C	250D	250E
500 watts	500H	500A	500B	500C	500D	500E
1000 watts	1000H	1000A	1000B	1000C	1000D	1000E
2500 watts	2500H		2500B	2500C		
5000 watts	5000H					
10000 watts	10000H					

### SWR / Power Meters

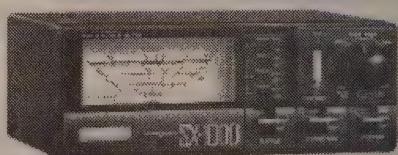
## KENWOOD

### SW-2100



The SW-2100 SWR / wattmeter features dual meters for monitoring of SWR and forward power. There are two ranges 0-200 W and 0-2000 W with a frequency range of 1.8 - 30 MHz. Suggested List Price \$164.95

## DIAMOND



The Diamond RF SWR / wattmeters cover the complete range of amateur applications. The SX meters have the following features:

- Illuminated meters. Require 12 volts DC.
- Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- Power measurement accuracy is generally  $\pm 10\%$  on the higher power ranges and  $\pm 5\%$  on lower ranges.
- Some have remote sensors for power pick-up.
- Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- Measurements are forward power, reflected power, SWR &, on selected frequencies, PEP monitor.

Model	Freq MHz	Power Ranges	Connectors	HRO Price
SX-100	1.6-60	30/300/3KW	SO-239	\$149.95
SX-200	1.8-200	5/20/200	SO-239	\$129.95
SX-400	140-525	5/20/200	SO-239	\$139.95
SX-600	1.8-160 140-525	5/20/200	SO-239	\$239.95
SX-1000	1.8-160 430-450 800-930 1230-1300	5/20/200	N N N	\$269.95
SX-9000	4 Band Automatic See SX-1000	5/20/200	Same as SX-1000	CALL

## DAIWA

Model	Description	HRO Price
NS-660A	1.8 - 150 MHz	\$189.95
CN-410M	3.5 - 150 MHz	\$99.95
CN-465M	140 - 450 MHz	\$99.95
NS-663BM/BN	144 - 525 MHz	\$199.95
DP-810	1.8 - 150 MHz	\$249.95
DP-820N	140 - 525 MHz	\$279.95

# MORE METERS & ACCESSORIES

## Frequency Counters



### Startek International

Startek's ATH™ series brings you auto trigger and hold in a pocket sized frequency counter. Super fast circuitry reads and holds a signal in less than one-tenth of a second. Call for HRO quotes.

Model	Description	List Price
ATH10	1-1200 MHz w/Auto trigger	\$179.95
ATH15	1-1500 MHz, High speed	\$235.95
ATH30	1-2800 MHz, High speed w/ ATH built in	\$299.95
ATH50	ATH-30 plus Hi-Z input 5 Hz to 48 MHz	\$339.95
1350	1-1300 MHz, 3 gate times	\$129.95
3500	10 Hz-3500 MHz, wide frequency range	\$249.95

## SWR Meters

### DAIWA

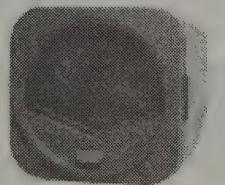


#### CN-101

##### Features:

- Large cross needle meter
- Forward / reverse read simultaneously
- PEP monitor function

CN-101	
Frequency	1.8 - 150 MHz
Power Range	15/150/1.5 KW
Power Rating	1.5 KW(1.8-60MHz) 1 KW (144 MHz)
SWR Detection	4 W minimum
HRO Price	\$89.95



#### CN-460M

##### Features:

- Compact
- Cross Needle Meter
- Mobile / Base Use

CN-460M	
Frequency	140 - 450MHz
Power Range	15/150 W
Power Rating	150W
SWR Detection	3W minimum
HRO Prices	\$99.95



#### NS-660PA

##### Features:

- Cross needle meter
- PEP and RMS readings
- Remote sensors available

NS-660PA	
Frequency	1.8 - 150 MHz
Power Range	30/300/3 KW
Power Rating	3. KW
SWR Detection	8W minimum
Sugg. List	\$229.95



#### DP-800 Series

##### Features:

- Large LCD display
- RMS and PEP readings
- Bargraph display
- Audible Beeps

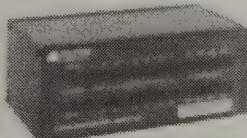
DP-830	
Frequency	1.8 - 150 MHz
	140-525 MHz
Power Range	0 - 1.5 kw
	0 - 150 MHz
Power Rating	1.5 KW
	150 W
SWR Detection	100-500 MHz with 30 and 300 watt ranges
Sugg. List	\$385.95

## Accessories



F121A  
Portable  
Antenna

This is the ideal portable VHF / UHF antenna for FM handhelds and scanners. It retracts to 8.7 inches, yet extends into a full size ground independent half-wave dipole for 2 meters, 222 MHz, 70 cm and all frequencies in between. Band markers eliminate measuring. Includes a chart for non-ham frequencies. Mount vertically or horizontally. It comes ready to use with pre-installed 6 foot 50 ohm cable and BNC connector. HRO Price \$29.95



#### F251A / F252A Amps

Falcon has two audio distribution amplifiers, the F251A (single amplifier) and F252A (dual amplifiers). This is the quick and easy way to switch audio from up to 7 rigs or other audio sources to a number of speakers. They combine outputs from several transceivers to a master station speaker, to audio filters, or TNCs. Inputs are highly isolated by the internal amplifier providing a constant 10 ohm impedance. Requires optional 13.8 VDC power. HRO Prices F251A \$78.95; F252A \$125.95

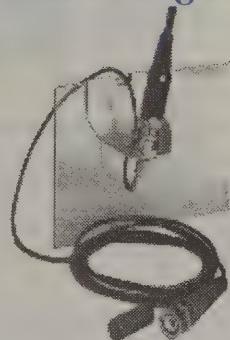
## SWR / Power Meter



Valor  
VECTRONICS

Vectronics has two cross needle meters that permit simultaneous monitoring of power and SWR. The PM-30 has 30 and 3000 watt ranges and a frequency range of 1.8-30 MHz. The PM-30UV covers 100-500 MHz with 30 and 300 watt ranges. HRO Prices PM-30 \$99.95; PM-30UV \$99.95

## Oak Bay Technologies



AM-101B

#### Rubber Duck Mount

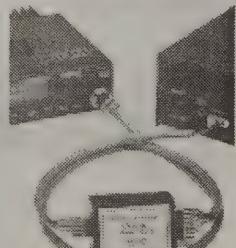
The perfect temporary antenna mount for emergencies, rental cars or vacations. Made of stainless steel, it has 15 watt power capability. Just slip over your window glass and attach your handheld antenna to the BNC connector. 6 feet of RG-174U coax provided. HRO Price \$24.95



PS-101

#### High Current Power Strip

This high current 12 VDC power strip for the ham shack has heavy-duty steel housing construction with current handling up to 50 amps. It has 5 fused outlets, 2-30 amp and 3-20 amp. It is perfect for HF radios or those high power VHF / UHF amplifiers. HRO Price \$79.95



CA-232-U

#### Universal Packet Cable

UNI-Cable™ provides interface between all popular TNCs and VHF/HF transceivers. No soldering is required. It can be easily programmed by the user for 8 PIN microphone connectors. HRO Price \$34.95

# NOISE FILTERS

## Audio Enhancers



### NRF-7

#### Filter / Noise Reducer

The NRF-7 Filter/Noise Reducer provides no-delay filters for AMTOR, PACTOR and break-in CW. The filter uses state-of-the-art Digital Signal Processing (DSP). This design permits sharp non-ringing CW and voice filters plus auto NOTCH and white noise reduction. It connects between the speaker output of your receiver or transceiver and an external speaker. HRO Price \$239.95; AC Supply HRO Price \$16.95

### NIR-10

#### Noise & Interference Reducer

The NIR-10 Noise and Interference Reduction Unit now with NEW REVISION 3.0 software is designed for use at the audio output of a transceiver to enhance the quality of received voice and CW. The NIR-10 uses advanced Digital Signal Processing (DSP) techniques to recognize and improve the signal-to-noise ratio of SSB voice signals. Features are also available to enhance CW and RTTY signals. HRO Price \$349.95  
AC Supply HRO Price \$16.95

### NTR-1

#### Wide Band

#### Noise / Tone Remover

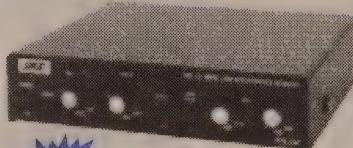
The NTR-1 is a general purpose audio processing unit designed specifically to provide noise reduction and multiple tone removal for AM/FM or other wideband signals. It provides narrow band operation for SSB, CW or data reception. It operates on the receiver audio output and contains a built-in audio amplifier. HRO Price \$169.95



### NF-60

#### Notch Filter

The NF-60 DSP Spectral Notch Filter automatically removes MULTIPLE heterodynes, tune-ups or CW/RTTY tones in 5 msec. The NF-60's DSP filter algorithm provides as many extremely narrow notch filters as there are tones. Connects between your transceiver or receiver speaker jack and an external speaker. HRO Price \$155.95  
AC Supply HRO Price \$16.95

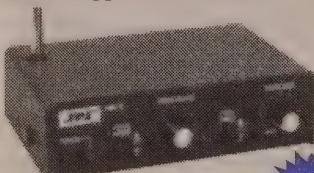


### NIR-12

#### Dual DSP

#### Noise Reduction & Filter

The most advanced noise reduction/filter available. Features dual DSPs to provide simultaneous bandpass filter, noise reduction (2 types) and multiple tone removal. Both Spectral Subtraction (NIR) and Dynamic Peaking noise reduction methods are included to eliminate IMPULSE noise as well as white noise. An AUTOMATIC NIR mode sets the noise reduction at optimum. Notch Filter removes multiple heterodynes from voice signals. Super-selective linear phase FIR filters are continuously variable in both bandwidth and center frequency. Bandwidth is adjustable between 50 and 3200 Hz. Internal access to the dual DSPs provided via RS-232. Requires 12 VDC @ 1A Suggested List \$349.95;



### ANC-4

#### Antenna Noise Canceller

The ANC-4 provides a means of eliminating local received noise before it enters the receiver. Unit installs between antenna and receiver input and includes two noise antennas: whip and wire. PHASE and GAIN adjustments allow local noise level to be virtually eliminated letting you hear what's going on beneath the noise. It is especially effective at cancelling local computer noise, electrical equipment noise and POWER LINE NOISE. Automatic bypass when transmitting (up to 150W). Can be used as an active antenna. Requires 12VDC at 300 mA. Suggested List \$175.00

### SSTV-1

#### DSP Filter for SSTV

The SSTV-1 is a specially designed filter for use with Slow Scan TV. It removes adjacent channel and in-band interference from SSTV signals. It clears up noisy and distorted SSTV pictures using digital signal processing. HRO Price \$159.95

## Signal Processors

### Timewave Technology Inc.



### DSP-9+

#### Noise Filter

The DSP-9+ reduces and filters noise and interference to improve radio reception. It uses digital signal processing technology to provide optimum filters for random noise reduction, heterodyne elimination and bandpass filtering.

The DSP-9+ reduces noise and interference with adaptive noise filter for SSB and AM. It eliminates heterodynes by using multiple automatic notch filters. Sharp speech, data and CW filters provide 1.8, 2.4 and 3.1 kHz bandpass well as 100, 200 and 500 Hz bandpass. This is perfect for RTTY, AMTOR, PACTOR, HF Packet and CW. List \$219.95



### DSP-9

#### Digital Signal Processor

The DSP-9 reduces and filters noise and interference to improve radio reception. Its digital signal processing technology provides optimum filters for random noise reduction, heterodyne elimination, and bandpass filtering.

Noise reduction function examines a characteristic of signal and noise called correlation and dynamically filters out the undesired noise. Random noise such as white noise or static is uncorrelated. Speech is moderately correlated. Pure tones are highly correlated.

Narrow band signals like CW require bandpass filters with steep skirts and linear phase response. SSB signals often have a high signal-to-noise ratio but have interference from other signals that overlap the desired signal. The DSP-9 will support both requirements.

The DSP-9 operates with convenient front panel push buttons. The correct filter combinations can be selected for CW or SSB. The DSP-9 is compatible with all amateur radio transceivers and receivers. Simply connect it between the radio and the speaker. Requires 12-16 VDC to operate (not provided). Suggested List \$169.95



### DSP-59+

#### Digital Signal Processor

The DSP-59 reduces and filters noise and interference to improve radio reception. The DSP-59 uses digital signal processing technology to provide optimum filters for five base functions: 1) Random noise reduction; 2) Tone noise reduction; 3) Highpass filtering; 4) Low-pass filtering; 5) Bandpass filtering. The five functions are combined to make five switch selectable modes.

The DSP-59 is compatible with all amateur radio transceivers and receivers. Simply connect it between the radio and the speaker. Requires 12-16 VDC to operate (not provided). Suggested List \$299.95

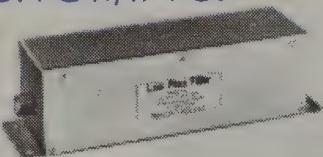
# FILTERS & ACCESSORIES

## High / Low Pass Filters

**BENCHER, INC.**



YA-1



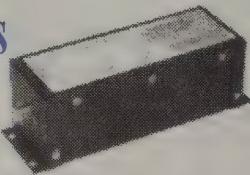
Bencher's low-pass filter has exceptional specifications. Working range: 1.8-29 MHz. Impedance: 50 ohms. Power rating: 1.5 KW continuous, 5 KW peak. Attenuation: at least 80 dB at 54 MHz. HRO Price \$49.95

B&W manufacturers two low-pass filters. Each has a different power handling capability. Attenuation is 60 dB at 54 MHz.

Model	Power	Cut-Off	Price
FL-10 / 100	100 watts	30 MHz	\$79.95
FL-10 / 1500	1500 watts	30 MHz	\$79.95

**Oak Bay Technologies**

**LP-11P  
Low Pass Filter**



The LP-11P is a commercial quality low-pass filter. It operates from 1.8-30 MHz with an 11 pole inverse Chebishev design. The upper cutoff frequency is 41 MHz with 80 db attenuation by 51 MHz. Maximum power is 1000 watts. HRO Price \$69.95

**Valor VECTRONICS**

**High & Low Pass Filters**

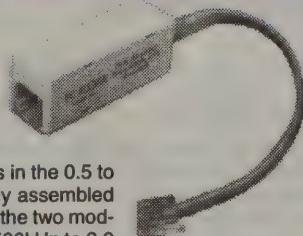
Vectronics high pass and low pass filters assist you in using your amplifiers.

Model		HRO Price
HPF-1	HighPass TV	\$19.95
LP30	1500W LowPass	\$69.95
LP2500	2.5 kW LowPass	\$129.95

## Telephone Filters

**K-COM**

**Telephone  
Interference Filters**



Stop telephone RFI from transmitters in the 0.5 to 30 MHz range. These filters are fully assembled and come with instructions. Either of the two models can be special ordered to cover 500kHz to 30 MHz. Call HRO for price and delivery information.

**Model RF-1** Single Line Filter for phones, answering machine, modems, fax and cordless phones. RJ-11 modular connectors. Can be special ordered for two-line phones. HRO Price \$16.95

**Model RF-2** For inserting RFI filtering into telephone wiring: inside phone jacks, behind wall-mounted phones, etc. Solderless connectors. HRO Price \$10.95

## Encoders / Decoders

## Communication Specialists

Control your repeater or listen only to those signals that are meant just for you. Tone encoders and decoders from Communication Specialists are just the items you need.

	Tone Encoder	ToneDecoder	Comments	HRO Price
TS-32P	*	*	Universal design, CTCSS encoder/decoder capability for all FM transceivers	\$57.95
SS-32PA	*		DIP switch programmable CTCSS encoder for all FM transceivers	\$28.95
SS-32SMP	*		Micro-miniature CTCSS encoder for handhelds. Programming by solder jumpers.	\$27.95
TE-64	*		Multi-purpose CTCSS/Burst Tone encoder	\$79.95

## Clock



**GEOCHRON**

**Global Time Indicator**

Suggested List Price \$1395.95  
Call for Special HRO Price

Geochron is a true global time indicator showing the correct time everywhere in the world. It shows day of the week, date of the month, the sun's zenith position, and the distribution of daylight and darkness on the surface of the earth. The Geochron can be mounted on any flat surface like a picture or it can be recessed into the wall with optional flush mounting brackets. Dimensions 34" X 22". Geochron Standard Model is shown without minute indicator. Deluxe version with minute indicator is available. Various color finishes and trim are available to select from.

# SWITCHES

## Surge Protectors

### ALPHA DELTA

#### Transi-Traps



Protect your rig from lightning, EMP and static. Transi-Traps are constructed of the finest quality materials; housings are of die cast aluminum; the brass element provides a constant impedance; the ceramic gas tube cartridge is protected by a unique custom-designed nylon shock absorber. The units give years of reliable service. When hit with a charge that exceeds its rating, it will short and indicate that a replacement plug is required. Most units take thousands of surges before needing a replacement.

Transi-Traps are designed for 50 ohms and include a replaceable cartridge. Units come with UHF connectors. Type "N" are available. To order replacement plugs, specify the model of Transi-Trap so the correct plug can be sent.

Model	Description	HRO Price
RT	200 W through 500 MHz	\$32.95
HV	2 kW through 500 MHz	\$35.95
LT	T type, 200 W through 30 MHz	\$22.95

### AMERITRON

#### Step-Start In-Rush Current Protector



Stops in-rush current upon power up and absorbs momentary high voltage spikes to your amplifier. ICP-120 for 110-120V or ICP-240 for 220-240 VAC. Suggested List \$79.95

## Coax Switches

### DAIWA

Daiwa has two heavy-duty coaxial switches. Both are useable to 500 MHz and the unused positions are grounded. Switches are also available at slightly higher prices with type "N" connectors.



CS-201  
Two-position switch.  
HRO Price \$25.95

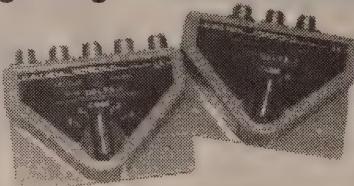


CS-401  
Four position  
switch  
HRO Price \$129.95

## Coax Switches

### ALPHA DELTA

#### Lightning Protected Switches



#### Delta-4

#### 4 Position Switch

This lightning protected 4 position RF coax switch uses the Alpha Delta Arc-Plug cartridge to protect your equipment from electrical surges. It features the exclusive center "off" (ground) position which internally disconnects and grounds all antenna circuits. The Delta-4 has custom design cast housing with constant impedance micro-strip cavity construction for outstanding performance through UHF. The switch uses a positive detent roller bearing switch drive, handles full legal power. Made in the USA. Order Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. HRO Price \$74.95; Type N \$89.95

#### Delta-2

#### 2 Position Switch

This 2 position coax switch is precision lightning surge protected. It has the same constant impedance cavity construction with "center-off" ground as the Delta-4 and a built-in replaceable Arc-plug® cartridge. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz. HRO Price \$49.95; With "N" connectors \$64.95.

## Dummy Loads



### Valor

### VECTRONICS

Vectronics offers a series of dummy loads for amateur use. Each of these is a dry load that will handle short term transmissions at the rated power levels. See the table below.

Model	Max Freq	Max Pwr	HRO Price
DL-300M	150 MHz	300 W	\$43.95
DL-650M	650 MHz	1500 W	\$69.95
DL-2500	150 MHz	2500 W*	CALL

\* Fan cooled

## Antenna Switches

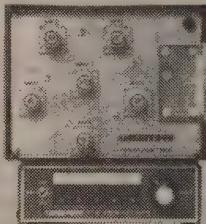
### HOFI

The HOFI antenna switch is available in two basic models, manual and remote. The switches are available for UHF or N connectors. Manual switches have the option for straight or angled connectors. The switches are low loss, heavy duty constructed with outstanding isolation. The remote switch requires an 8 conductor cable for control.

Model	Connector	HRO Price
<b>Manual Switches</b>		
605	UHF	\$97.95
2005	N	\$199.95
616	UHF angle	\$139.95
2116	N angle	CALL
<b>Automatic Switches</b>		
611	UHF angle	\$319.95
2011	N angle	CALL

## Remote Coax Switch

### AMERITRON



RCS-8V DC-UHF 5 kW Coax Switch. Replace 5 coax feedlines with just one with this Coax Switch. Weatherproof box mounts outdoors on your tower or mast. Attractive control unit sits on your operating desk. Low SWR to 450 MHz. Low loss. Rated at 5 kW to 30 MHz, 1 kW to 150 MHz. Suggested List \$149.95

RCS-4 4 position HF switch. Similar to RCS-8V. Requires no control cable. Handles 2500 watts PEP. Suggested List \$134.95

## T / R Switch

### AMERITRON

QSK-5 Pin Diode T/R Switch. Self-contained. Connects externally to most HF amplifiers. Handles 2.5 kW PEP, 2 kW CW. Six times faster than vacuum relays. Suggested List \$349.95

# MICROPHONES



## Headset PRO-SET



Heil's newest headset for the amateur provides comfort and performance. Available for Icom, Kenwood and Yaesu. Contact HRO for specifications. Connecting cables optional for Icom, Kenwood and Yaesu. Suggested List Price \$135.95

## Microphone Elements HC-4 / HC-5

Heil Sound has two replacement microphone elements designed for amateurs. The HC-4 was designed for serious DX and contest operators. With a 10 dB peak at 2,000 Hz and the low rolled off sharply at 500 Hz, this is best for getting through the pile ups. The HC-5 has higher fidelity and is the recommended element for the Icom SM-5/6. The output level matches that required for the Kenwood and Yaesu HF radios.

HRO Prices: HC-4 \$28.95; HC-5 \$28.95

## Desk Microphones



### F261A

Falcon's dual-channel desk mike improves your rig's performance with clean transmitted audio and convenient operation. Features built-in equalizers, built-in VOX and electret mike element. The F261A is ready to plug in and use. Supplied with two pre-installed mike plugs and cables that fit all HF, VHF and UHF transceivers with 8-pin mic connectors. Requires 4-1.5v cells or 6-25 VDC external supply (not supplied). HRO Price \$149.95

## HM-10 Series



By carefully selecting the correct hardware, you can design the EXACT audio set up you need for your station. With the new hardware from Heil, you can clamp it, screw it, bolt it, or hold the great new Heil microphone, the HM-10. The components are shown below. They are available pre-wired for Kenwood, Yaesu and Icom. Please specify your radio.

Model	Description	Sugg. List
HM-10 (4)	Mike with case and HC-4 element	\$85.95
HM-10 (5)	Mike with case and HC-5 element	\$85.95
HM-10 Dual	Mike with both HC-4 and HC-5	\$131.95
MA-1	Adjustable Boom	\$49.95
FS-1	Foot Switch	\$24.95
TB-1	Table Base Mount	\$12.95

## Headset / Boom Mike BM-10

The Heil BM-10 is a boom mike / headset developed especially for the amateur operator. It weighs only 8 oz and the earpieces are soft and comfortable. Order with either the HC-4 or HC-5 mike element and wired for Icom, Kenwood or Yaesu. Please specify.

Model	Wiring	Element	HRO Price
BM-10 K4	Kenwood	HC-4	\$85.95
BM-10 K5	Kenwood	HC-5	\$85.95
BM-10 I4	Icom	HC-4	\$85.95
BM-10 I5	Icom	HC-5	\$85.95
BM-10 Y4	Yaesu	HC-4	\$85.95
BM-10 Y5	Yaesu	HC-5	\$85.95
FS-1	Foot Switch		\$24.95

# ACCESSORIES

## AZIMUTH



### World RadioSphere Globe

\$99.95 HRO Price

## Awards QSL Library™

Throw out the shoe boxes and get organized. Each handsome album is custom designed with 20 crystal-clear pocket pages—enough for 120 QSL cards. Add extra pages as your collection expands... up to 40 pages or 240 cards per album. Collect your cards for each radio award in its own album:

Model	Description	HRO Price
QSL Album	Standard QSL Album	\$19.95
QSL Album-DXCC	DXCC Album	\$19.95
QSL Album-WAZ	WAZ Album	\$19.95
QSL Album-WAS	WAS / WAC Album	\$19.95
Pages	20 Extra Pages	\$12.95

## Antenna Mount

## Tenna Hitch



Where can you mount your antenna on a car with no bumpers? Where can you mount your HF antennas without punching holes? Do you want to pull a trailer and ham at the same time?

Here is the solution. The Tenna Hitch mounts under the ball of your trailer hitch so you can use your regular antenna for HF mobile operation while still pulling your trailer. Tenna Hitch will support all current HF mobile antennas. It comes with all the hardware necessary for mounting on your trailer hitch. HRO Price \$32.95

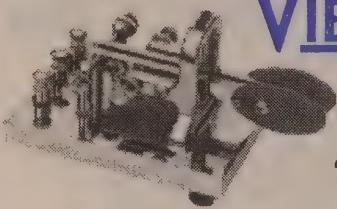
## SHURE®

Quality  
Microphones  
Call HRO for details...

Model 444D  
HRO Price  
\$79.95

Model 526T  
HRO Price  
\$109.95

# KEYERS



## VIBROPLEX®

Call for Quotes

"iambic"

The iambic paddle is offered in response to many requests from operators to bring the Vibroplex tradition to modern telegraphy. Although traditional Vibroplex design, it is a modern iambic paddle.

There are three models: **iambic Presentation**: 24K gold plated brass plate on a polished chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **iambic Deluxe**: Same as Presentation but without the 24K gold plated brass plate. **iambic Standard**: A neat textured-finish gray base with chrome top parts.



"Vibrokeyer"

The Vibroplex Vibrokeyer is designed for "Bug" operators who want to move to electronic keyers without relearning keying. The single lever paddle imitates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug." It uses the same main frame and chrome parts as the "Original" for the same smooth and easy operating Vibroplex feel. For those who want to combine traditional skill with modern electronics.

Available in two models. **Vibrokeyer Deluxe**: Highly polished chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **Vibrokeyer Standard**: A neat, crisp textured finish gray base with bright chrome parts.



"Original"

The Vibroplex "Original" design, with little modification, is made today by the same company using the same tools and dies as always. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old. The distinctive sound of the "Bug" can still be heard—the signature of a true CW expert.

Available in three models. **Original Presentation**: 24K gold-plated brass plate on a highly polished chrome base with bright chrome top parts. Its silky smooth jeweled movements are the same as those used in fine Swiss watches. **Original Deluxe**: Same as the Presentation but without the 24K gold plated brass plate. **Original Standard**: A neat, crisp textured finish gray base with bright chrome top parts.



"Brass Racer"

The Vibroplex Brass Racer EK-1 is also a keyer. Concealed in the base is a fully iambic, dot-dash-inserting, and adjustable speed control keyer using the Curtis 8044 chip. Vibroplex quality and pride throughout. A great unit for mobile or DXpedition. The Vibroplex Brass Racer—iambic is a new design of the iambic paddle; crafted from solid brass and mounted on a base of polished hardwood. The paddle tension can be customized to the operator's precise feel with a single twist of our unique tensioning system. No screws, no springs.

Available in two models: **Brass Racer EK-1**: Same as Brass Racer iambic but includes a built-in electronic iambic keyer. Sugg. List \$149.95

**Brass Racer iambic**: Solid lacquered brass mounted on a hardwood base. Sugg. List \$65.95



### Code Practice Set

404-002

Perfect for the beginner. Nye Viking standard key oscillator with amp and built-in 2" speaker on a base with non-skid feet. Gives chirp-free keying. HRO Price \$49.95

### Master Key 330-001

The perfect straight key comes with cord and plug. Isolated contact assembly separates keying circuit from hardware. Includes gold-plated silver contacts, adjustable key arm, Navy knob, and heavy die-cast base. HRO Price \$59.95

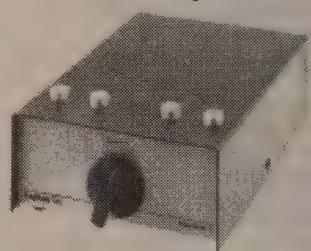


### Straight Keys

Keys with gold-plated heavy silver contacts, adjustable key action, and heavy die-cast bases. Brass or nickel-plated hardware, standard or Navy knobs.

## Logikey

K-1 Keyer



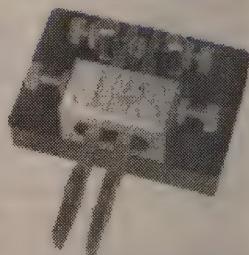
The K-1 has four simple-to-load message memories. Each holds 48 characters such as "The quick brown fox jumped over the lazy dog's back." Messages may be tied together, may call other memories and loop for beacon functions. Automatic serial number generation is easy, while serial number decrements are done by simply pressing the middle two buttons. If you err in loading a message, send a string of 7 or more dits to erase the last word sent. Word and letter spacing is easily customized. Suggested List Price \$129.95

K-1 Features include:

- Linear speed control. Range 6-60 WPM.
- Weighting control, 25-75%.
- Fully iambic, dot and dash memories.
- Four memories of 48 characters each.
- Messages may have embedded functions.
- Message loop capability.
- Input Queuing for multiple memory calls.
- Multi-format serial numbers to 9999.
- Instant serial number decrements.
- Selectable auto spacing.
- Memories can allow paddle insertion.
- Corrects transmitter keying characteristics.
- Built in monitor, speaker, tune function.
- Superb user friendly instruction manual.
- Provision for remote switches.
- Keys positive or negative lines.
- Requires 12 VDC. Built in back up battery.

## Palomar Engineers

Precision made by Jones of England. Imported by Palomar. Smooth solid iambic action by rotary ball bearings enclosed in machined brass block on steel base. Adjustable spring tension, paddle height and paddle spacing. 3-1/2 pound total weight. Gold plated contacts. Engraved serial number.



PK-200 Brass mechanism

with red steel base \$145.95

PK-200B All Brass \$170.95

PK-200G Gold plated

(base & mechanism) \$299.95

**BENCHER, INC.**



### BY Series

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. Bencher paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

HRO Prices for iambic models:

BY-1	Black	\$72.95
BY-2	Chrome	\$89.95
BY-3	Gold	\$219.95
BY-4	Gold/Blk	\$139.95



### RJ Series

For nearly twenty years, Bencher has been the market leader in keyer paddles for flawless code. Now Bencher introduces a hand key that is destined to be the new standard in its class.

The Bencher "RJ" series of hand keys features an advanced American-style design derived from the telegraph keys that won the west, yet with modern features that old timers would have killed for. Like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and quality materials through out—Bencher quality!

These keys are ideal for the new amateur just mastering the code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction.

Ask to see the Bencher "RJ" hand key at your favorite HRO location. Send your call, or a snappy "CQ." You will be immediately convinced that there is not a better key available.

HRO Prices: RJ-1 Black \$69.95  
RJ-2 Chrome \$79.95

### ST Series Single Lever Paddles

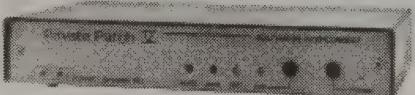
Superb Bencher features and construction for the ham who prefers single level operation.

HRO Prices: ST-1 Black \$72.95  
ST-2 Chrome \$89.95

# PHONE PATCHES



Connect Systems Inc. has been producing the finest interconnect products available for more than ten years. These microprocessor-based products offer many features unavailable from any other manufacturer. Compare carefully and your choice will be clear.



### Private Patch V (VHF / UHF)

Private Patch V is the only simplex patch available that can turn your base station radio into a mobile phone system without any internal connections to your radio. Simply connect to the mike and speaker jacks. Private Patch V can be used straight simplex or through remotely located repeaters to extend range. Other modes to be selected using the built-in programming keyboard (and companion display) include vox enhanced sampling, half duplex and repeater controller. Private Patch V is loaded with high-end features such as 90 memory speed-dialer, redial, pulse or regenerated tone dialing, automatic disconnect on busy signals and dial tone, toll restrict, secret toll override code, ringout on 1-9 ring, remote base mode, call waiting/line-in-use detect, CW ID and more. Fully FCC and DOC approved. Suggested List Price \$533.95

# YAESU

### SP-767P

The SP-767P is the phone patch version of the popular SP-767 speaker. Cables are provided for connection to the current line of Yaesu HF radios. It does not include the audio filters of the SP-767 speaker. Suggested List Price \$136.95

# KENWOOD



### PC1A

This phone patch is compatible with the Kenwood radio line and comes with an 8-wire cable for direct connection to the radio mike plug. The PC1A is FCC part 68 registered. Wired for Kenwood radios but may be used with others after proper changes in the connections. Suggested List Price \$134.95



### Full Duplex Interconnect Repeater Maker CS-800

This low-cost fully-automatic full-duplex autopatch will convert your duplex dual-band base and mobile / HT into a mobile telephone system. The built-in repeater maker will also repeat crossband if desired. Or, connect the CS-800 to your existing repeater to add autopatch. Initiate and receive telephone calls without assistance. A two transformer hybrid gives optimum duplex null. All features are user programmable / selectable using the built-in keyboard and digital readout display. User programmable features include: 9 phone number speed dialer, Morse ID, toll restrict, access code, toll override access code, regenerated tone or pulse dialing, courtesy beep, repeater on / off code, hangtime and more. Suggested List Price \$399.95



### Simplex Interconnect CS-700

This low-cost fully-automatic simplex autopatch will convert an FM simplex base and mobile / HT into a mobile telephone system. Initiate and receive telephone calls without assistance. The CS-700 gives complete control to the mobile user. Select either VOX enhanced sampling or VOX controlled sampling with the built-in keyboard and digital readout display. Additional user-programmable features: 9 phone number speed dialer, Morse ID, toll restrict, access code, toll override access code, regenerated tone or pulse dialing, courtesy beep and more. Suggested List Price \$399.95

### Simplex Patch CS-900

The CS-900 is voice activated and can be used simplex or through any remotely located repeater. The standard 1/2 second Electronic Voice Delay totally eliminates syllable or word clipping and results in unsurpassed simplex performance. A 90-memory speed-dialer and remote base mode are also included. The only required connections are to the mike and speaker jacks of your simplex transceiver. This is the best deal going in a simplex patch. Suggested List Price \$379.95

# ANTENNA TUNERS



SG-230

## SMARTUNER™ HF-SSB Antenna Coupler

The Smartuner, SGC's HF antenna coupler is a new breed of antenna tuner, combining fully-computerized operation with a wide range of antenna matching possibilities. It is a versatile, clever, automatic device with quite surprising capabilities even on random wires. The Smartuner also works with any HF rig! **Suggested List Price \$550.00**

- Tunes itself on an SSB signal. It does not need a constant carrier.
- Matches antennas from 2.5 to 27 meters long. A minimum length of 8 meters (25 feet) is required for 160 meter operation.
- Operates continuously from 1.8 to 30 MHz.
- Memorizes tuning which has already been done. There are 500 memory spots.
- The perfect addition to your marine-mobile installation.

- Tunes unknown antennas in just two seconds.
- Tunes a known antenna in milliseconds.
- Needs no bandswitching information, special low power tune-up or special wiring.
- 10 to 150 watts input power.
- Input impedance range is 45 to 55 ohms.
- DC operating voltage range is 10 to 15 VDC .9 amps.

## QMS Antenna Tuner

\$895.00

Suggested List Price - Call for Quote

The QMS is an HF antenna tuner that can be strapped to the side of your vehicle. It includes an SGC Smartuner™ automatic antenna coupler, an SGC-303 extended full range antenna, and the special exterior, waterproof, mounting package. At first glance it looks a little unusual, but once you use it, you'll find an almost unbelievable jump in reception and transmitting range (3-20 dB). Mounting the tuner and antenna on the outside reduces engine noise and eliminates power draining antenna wire runs between the antenna and the tuner. The QMS makes a typical HF-SSB perform like it's never performed before. Match it with a cutting edge SGC HF-SSB and it will blast holes through major mountain ranges. Power and focus are everything in HF-SSB rigs.



Icom has six antenna tuners to use with their radios. All are automatic and, with the front panel controls, can be used with most HF exciters. Random wire and balanced line antennas cannot be used with the resonant antenna tuners. See the table on Page 10 for more tuner/radio compatibilities.

## Reasonant Antenna Tuners

### AT-500

A tuner for base station use with a cabinet to match the IC-751A. The AT-500 can be used with the 2KL HF linear.

**Suggested List Price: \$995.95**

### AT-150 / AT-160

Fully automatic 100 W tuners styled after the IC-735 and IC-728 respectively.

**Suggested List Prices:  
AT-150 \$539.95; AT-160 \$442.95**

## Random Wire Tuners



### AH2A

This tuner includes a control unit for direct connection to the IC-735. Use with other Icom HF radios with the proper matching cable. Tunes back-stays on a sailboat. Has optional bumper mount and whip (AH2B).

**Suggested List Prices:  
AH2A \$691.95; AH2B \$275.95**

### AH3

This automatic tuner, designed to use with the IC-738, 737A, 728, 725 and IC-707, features automatic digital control tuning and eight frequency memories. Use with the optional AH-2b antenna element for mobile operation.

**Suggested List \$594.95**

# Valor VECTRONICS



### VC-300-DLP

\$169.95

Suggested List Price - Call for Quote

The VC-300-DLP Antenna Tuner has a built-in dummy load, a peak or average-reading meter and is easy to operate. It is compatible with almost ANY antenna including verticals, dipoles, inverted vees, beams, mobile whips that are fed by coax cable, open feeders, balanced lines or a single wire. Covers 3.5 to 30 MHz continuous for 300 watts. Up to 150 watts for 1.8 MHz. Features a dual movement lighted meter to simultaneously monitor power and SWR.

### VC-300-D

\$219.95

Suggested List Price - Call for Quote

The VC-300-D is Vectronics' top-of-the-line Antenna Tuner. It has identical specifications to the VC-300-DLP but also includes a digital bar graph displaying peak output power. LEVEL and DELAY controls have been added to calibrate the display and to vary the display response.

### VC-300M

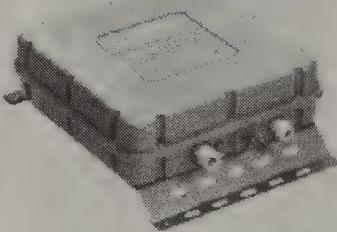
\$139.95

Suggested List Price - Call for Quote

The VC-300M Antenna tuner is compact, lightweight, easy to use, and economical. It features a dual movement meter to simultaneously monitor SWR and power. The tuner covers 1.8 - 30 MHz with power up to 300 watts.

Call Toll Free  
for HRO Discounts

# YAESU



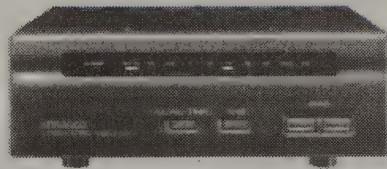
### FC-800

This automatic antenna tuner is operates with the FT-890 HF transceiver. The tuner is fully automatic and operations can be controlled from the front of the FT-890. Suggested List \$499.95

### FC-757AT

When this tuner is used with the FT-757GX or FT-757GXII, it obtains all band data directly from the radio. Front panel controls allow it to be used with other manufacturer's exciters. The tuner has a microprocessor, a built-in 50 ohm dummy load and automatic SWR calculating system, SWR meter, and dual range RF wattmeter. Suggested List \$530.95

# KENWOOD



### AT-50

A fully automatic antenna tuner to use with the TS-50 and other 100 watt HF transceivers. Useful for both mobile and fixed operation. Accurate tuning by pressing the AT TUNE key on the TS-50. Can be installed remotely. Suggested List \$369.95

### AT-300

A fully automatic antenna tuner to use with the TS-850, TS-690, TS-450 and TS-50. Designed to tune random wires or a mobile whip. The perfect tuner for mobile operation. Suggested List \$689.95

### AT-450

The AT-450 is an automatic tuner specially designed to operate inside the TS-450S and the TS-690S. It can easily be installed in the field by the ham. Suggested List \$249.95



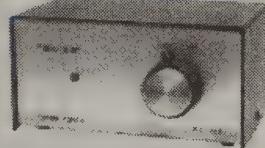
### 3 KW Tuner MB-V-A



Match transmitter output impedance to almost any antenna system for maximum power transfer. Low pass Pi network tuning 1.8-30 MHz. Automatic SWR. Separate power meter, 300 or 3000 W. Push button antenna switch for 4 antennas. Includes 3 KW balun. This high quality antenna tuner designed for the amateur who wants "the best." Suggested List Price \$791.95

# Palomar Engineers

### Tuner-Tuner PT-340



Help stamp out tune-up QRM (and save your finals at the same time). Just connect the Tuner-Tuner between the tuner and the rig. Tune the receiver to the frequency you want to operate. Turn on the Tuner-Tuner and adjust the antenna tuner until the noise drops out. The antenna tuner is now tuned to the desired operating frequency. HRO Price \$99.95



### R-X Noise Bridge RX-100

Do you know the resonant frequency of your antenna exactly? The R-X Noise Bridge tells you whether or not your antenna is resonant. If not, it tells you whether it is too long or too short. The RX-100 works with dipoles, inverted vees, quads, Yagi beams, multiband trap dipoles and verticles. Frequency range is 0 to 100 MHz On multiband trapped antennas, adjust each section so that the antenna works properly on each band. Use it to measure coax, tune your antenna tuner, test a balun and check tuned circuits. Since the RX-100 uses your receiver, it is much more accurate than a grid dip meter. (Warning! Do not transmit into the RX-100. The unit will be damaged.) HRO Price \$79.95

## HF Tuners



16010

901B

945D

941E

948

949E

962C

986

989C

**MFJ-16010 Random Wire Tuner** for all bands anywhere. 1.8-30 MHz. Turn any random wire into a transmitting antenna. Also for apartment, motel, camping. 200 watts. HRO Price \$39.95

**MFJ-901B Versa Tuner** is our smallest, most affordable 200 watt tuner. Good for matching solid state rigs to linear amplifiers when space and budget are limited. 1.8-30 MHz, 4:1 balun. HRO Price \$59.95

**MFJ-945D Mobile Tuner** Take along this mobile tuner and have an uninterrupted trip. It extends antenna bandwidth and eliminates the need to stop, go outside and readjust your mobile whip. Cross-needle meter allows hands-free operation. Handles 300 watts. It reads forward/reflected power in 50/300 and 5/50 watt ranges. Has on/off lamp switch. Efficient air wound inductor gives you lower losses and more watts out. 1000 volt capacitors. Covers 1.8-30 MHz. HRO Price \$89.95

**MFJ-941E Versa Tuner II** A 300 watt antenna tuner covers 1.8-30 MHz, and you get a lighted cross-needle meter with on/off switch. HRO Price \$99.95

**MFJ-948** like the 949E but without dummy load. Eggshell white. HRO Price \$119.95

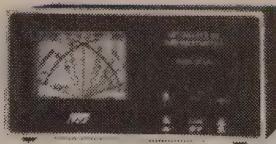
**MFJ-949E Deluxe Versa Tuner II** covers 1.8-30 MHz and handles 300 watts. Has built-in 50 ohm dummy load. Lighted peak reading cross-needle SWR/wattmeter. Reads forward/reflected power in 50/300 and 5/30 watt ranges. Front panel antenna switch selects 2 coax lines direct or through tuner, random wire/balanced line or dummy load. Efficient 12 position airwound inductor gives lower losses and more power out. Has 4:1 balun, 1000 volt capacitors. A black aluminum front panel matches your rig perfectly. HRO Price \$139.95

**MFJ-962C Versa Tuner III** for 1.8-30 MHz handles 1.5 kW PEP. Matches coax, random wire, or balanced line (built-in 4:1 balun). Six position antenna switch for 2 coax lines. HRO Price \$219.95

**MFJ-986 Differential-T Tuner™** for 1.8-30 MHz, at 3 kW PEP. T-network with roller inductor and differential capacitor. Peak reading cross-needle SWR/wattmeter for 200/50 and 2000/500 watt ranges. Roller inductor spinner knob, 3 digit counter. 6 position antenna switch. 4:1 balun. HRO Price \$279.95

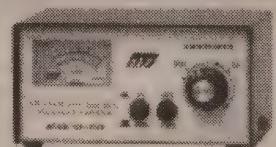
**MFJ-989C Versa Tuner V** heavy duty! Covers 1.8-30 MHz, 3 kW PEP, matches everything: coax fed, random wires and balanced lines. Roller inductor with spinner knob and 3-digit counter. Peak reading Cross-needle SWR/wattmeter 200/2000 watt ranges. 50 ohm, 300 watt dummy load, 4:1 balun, 6 position antenna switch, tilt flip stand. HRO Price \$329.95

## Wattmeters



**MFJ-815B Deluxe Peak Reading SWR / Wattmeter** covers 1.8-60 MHz. Illuminated cross-needle meter shows peak or average forward/reflected power and SWR at a glance. Two ranges: 200/2000 watts. Meter light requires 12 VDC. HRO Price \$69.95

**MFJ-817 144 and 440 MHz SWR / Wattmeter** shows peak or average forward and reflected power and SWR at a glance. Two power ranges (200/20 forward and 50/5 reflected). Push button to select range, meter lamp, and peak or average power. Lamp uses 12 VDC or option 100 VAC MFJ-1312. HRO Price \$79.95



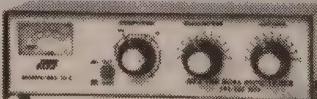
**MFJ-812B VHF SWR / Wattmeter** for 2 meters and 220 MHz. Reads SWR forward and reflected power on 30 and 300 watt scales; SWR from 14 MHz through 220 MHz and relative field strength from 1 to 220 MHz. HRO Price \$29.95

**MFJ-864 HF/VHF/UHF (1.8-60MHz, 144/440MHz) Cross-needle SWR/Wattmeter.** Read forward and reflected power and SWR simultaneously. Has separate HF and VHF/UHF directional couplers with SO-239 connectors. Power ranges 30/300 forward and 6/60 reflected. HRO Price \$59.95

**MFJ-862 VHF/UHF SWR/Wattmeters.** same as MFJ-864 but covers 144/220/440 MHz HRO Price \$59.95.

**MFJ-860 HF SWR/Wattmeters.** same as MFJ-862 but covers 1.8-60 MHz HRO Price \$39.95.

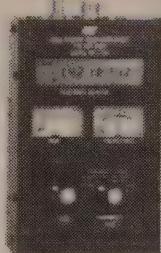
## VHF / UHF Tuners



**MFJ-921 Dual Band VHF Tuner** covers 2 meters and 220 MHz. Convenient built-in VHF SWR/wattmeter. Handles 200 watts and matches a wide range of impedances. It is excellent for mobile and base operation. SO-239 input/output connectors and wing nut post for your ground. Eggshell white and black aluminum cabinet. Comes with MFJ's full one year unconditional guarantee. HRO Price \$69.95

**MFJ-924** similar to the MFJ-921 but covers only the 440 MHz band. HRO Price \$69.95

## SWR Analyzers



**MFJ-259 SWR Analyzer with Resistance Meter** covers 1.8-170 MHz continuously. Built-in 10 digit LCD frequency counter. Ball-bearing vernier reduction drive makes setting frequency easy and precise. Reading SWR is automatic. Plug in your antenna, set your SWR analyzer to the frequency and read the SWR. Four instruments in one: RF signal generator, 170 MHz frequency counter, SWR analyzer plus the exclusive MFJ RF Resistance Meter. You can now measure RF feedpoint resistance up to 500 ohms at minimum SWR instantly on the MFJ exclusive side-by-side RF Resistance Meter and SWR Meter. Take the guess work out of building matching networks and baluns. Handheld size. Operate with batteries or with optional AC adapter MFJ-1312B. HRO Price \$209.95

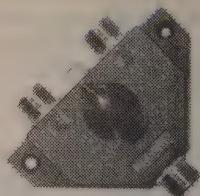
**MFJ-249** like the MFJ-259 less resistance meter. HRO Price \$189.95

**MFJ-29 Carrying Pouch** for MFJ-249/259. HRO Price \$19.95

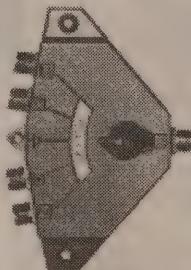
**MFJ-66 Dip Meter Coils** for MFJ-249/259. Set of two coils cover 1.8 thru 170 MHz.. HRO Price \$19.95

## Antenna Switches

**MFJ-1702B Coax Antenna Switch.** 2 positions plus center ground, 50 ohm. Rated to 500 MHz with 0 dB loss. Handles 2.5 kW PEP or 1 kW CW. 60 dB isolation at 300 MHz. 50 dB isolation at 450 MHz. Unused terminal grounds for static protection. HRO Price \$21.95



**MFJ-1702BN** has Type N connectors, goes to 1.1 GHz. HRO Price \$31.95



**MFJ-1704 Coax Switch** 4 positions plus center ground, 50 ohm. Rated to 500 MHz with 0.2 dB loss. Handles 2.5 kW PEP, 1 kW CW, 50 dB isolation at 500 MHz. Includes a replaceable lightning protection device that reduces lightning surges and static. HRO Price \$59.95

**MFJ-1704N** has Type N connectors. HRO Price \$69.95

**MFJ-1701 Antenna Switch** 6 positions, 50-75 ohm. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. HRO Price \$34.95



**MFJ-1700B Antenna / Transceiver Switch** 1-6 antennas, 1-6 rigs. Tuner, SWR meter, linear etc. in line to operate any combination. 50-75 ohms. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions grounded. HRO Price \$64.95

## Transceivers



**MFJ-9020 20 Meter CW Transceiver** High performance superheterodyne receiver with razor sharp 8-pole crystal filter, RIT, AGC, vernier tuning, pure sinewave, side tone, speaker, headphone jack, adjustable semibreak-in, 5 watt RF. Covers lower 20 Meter CW band. 6" x 6-1/2" x 2-1/4".

**MFJ-9040** for 40 M: 7.000-7.150 MHz.  
**MFJ-9030** for 30 M: 10.100-10.150 MHz.  
**MFJ-9017** for 17 M: 18.068-18.110 MHz.  
**MFJ-9015** for 15 M: 21.000-21.200 MHz.  
**MFJ-412** plug-in Curtis Chip Keyer.  
**MFJ-726** plug-in audio filter.

## SSB Station

**MFJ-9420B 20 Meter SSB Travel Radio™** is the smallest rig of its kind. It is a complete station, microphone, power supply and antenna and fits in your brief-case. With an output of 12 watts you can work the world. With RF speech processing you focus all your power into a clear signal.

Plug in the optional MFJ-415 module (\$39.95) and operate CW from 14.000-14.100 MHz. Has semi break-in, sidetone and key jack. **HRO Prices**  
**MFJ-9429** \$219.95 (no mic)  
**MFJ-9429X** \$229.95 (special with mic)  
**MFJ-290 Microphone** \$29.95

## HT Speaker / Mikes



**MFJ Compact Speaker Microphones** Leave your HT on your belt while talking or monitoring calls. The mikes feature a lapel/pocket clip letting you place it close to the ear for easy listening. Each mike includes an electret element plus an earphone jack. **MFJ-284** fits Icom, Yaesu.  
**MFJ-286** fits Kenwood.

**MFJ Mini Speaker / Microphone** provides a microphone in a miniature package for the newest HTs. Each microphone is equipped with an electret element, wide range speaker, earphone jack, PTT and retractable cord. You get a swiveling lapel/pocket clip. The models with the "L" provide an "L" connector for those HTs requiring this type.

**MFJ-285** fits Icom, Yaesu, & some Alinco.  
**MFJ-285L** MFJ-285 with an "L" connector.  
**MFJ-285W** fits Icom IC-W2A.  
**MFJ-287** fits Kenwood.  
**MFJ-287L** MFJ-287 with an "L" connector.  
**MFJ-283** fits the dual connector Alinco.

## SWL Products



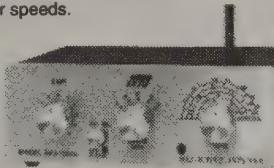
**MFJ-1214PC Multimode** transmits and receives WeFAX, FAX, CW, RTTY, and ASCII. Use

your computer and radio to receive, display and transmit brilliant full color news photos and incredible WeFAX weather maps with all 16 gray levels. Easy-to-use menu-driven software, cables, power supply, comprehensive manual and Jump-Start™ guide. Works with VGA, EGA or Hercules IBM compatibles with 512k RAM and 8 MHz or faster speeds.

**HRO Price** \$139.95

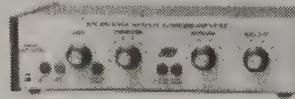
### MFJ-1020A Indoor Active SWL Antenna.

Tuned circuit minimizes intermod, improves selectivity, reduces noise outside the tuned band. Use as preselector with external antenna. 0.3 to 30 MHz. Tune, Band, Gain, ON-OFF/Bypass Controls. Telescoping whip. Use 9 V battery (not included), 9-18 VDC or 110 VAC with optional MFJ-1312. **HRO Price** \$79.95



**MFJ-1022 300 kHz to 200 MHz Active Antenna**. Uses new noiseless feedback circuit to give you excellent low noise reception. Uses 9 V battery or 110 VAC with optional MFJ-1312B. **HRO Price** \$39.95

**MFJ-1024 54" Outdoor Active Antenna** covers 50 kHz to 30 MHz. Receives strong, clear signals, 20 dB attenuator, gain control, ON LED. Switch selects from two receivers and two antennas. Remote unit has 54 inch whip, 50 feet of coax and connector. 12 VDC or 110 VAC with optional MFJ-1312. **HRO Price** \$119.95



**MFJ-959B Receiver Antenna Tuner / Preamplifier** provides proper impedance matching so

you transfer maximum signal from antenna to receiver. Covers 1.6 to 30 MHz, 20 dB preamp with gain control boosts weak stations. 20 dB attenuator prevents overload. Select from 2 antennas, 2 receivers. Uses 9-18 VDC or 110 VAC with optional MFJ-1312. **HRO Price** \$89.95

**MFJ-956 LW / MW / SW Preselector / Tuner** Boost your favorite stations while rejecting images, intermod and other phantom signals. It greatly improves reception of signals from .15 to 30 MHz. Connects between receiver and antenna. Has tuner bypass and ground receiver positions. **HRO Price** \$39.95

**MFJ-1040B All Band Transceiver / Preselector** lets you copy weak signals. Rejects out-of-band signals, images. 1.8-54 MHz. Up to 20 dB gain. Dual gate MOSFET, bipolar transistors for low noise, high gain. 20 dB attenuator, 2 antennas, 2 receivers. Coax and phone jacks. Bypass to 350 watts. Jack for PTT. Uses 9-18 VDC or 110 VAC with optional MFJ-1312. **HRO Price** \$99.95

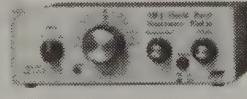


jack and displays messages on two-line, 16 character LCD display. No computer needed. **HRO Price** \$159.95

**MFJ-8100 Shortwave Regenerative Receiver** covers 75/80/49/40/30/31/20/25/22/19/17/16/15/13 meter bands. Listen to AM, SSB, CW, WWV, RTTY and packet. Has smooth vernier reduction drive, bandswitch, volume and RF gain controls. Uses 9 volt battery. Has two headphone jacks.

**MFJ-8100K Kit** **HRO Price** \$59.95

**MFJ-8100W Wired and tested** **HRO Price** \$79.95



## Packet / Multimode



**MFJ-1278B** With PACTOR built-in, the MFJ-1278B brings you state-of-the-art advances in Color SSTV, Color FAX, 16 Gray Levels, Modem, Packet, AMTOR, RTTY, ASCII, CW, FAX, SSTV, Navtex and Contest Memory Keyer. Plus 32k RAM, mailbox expandable to 128k or 512k, free AC power supply. Host Mode, KISS interface for TCP/IP and MSYS compatibility, fast through-put anti-collision technology. Independent transmit level for each radio port, random code generator, lithium battery backup, RS-232 and TTL, serial ports, socketed IC's, tune-up command, peripheral I/O port, automatic serial numbering, programmable message memories, dual radio ports (each HF or VHF), CW paddle jack. Audio amplifier and speaker jacks to monitor CW sidetone. Transmit and receive audio and packet connect bell. New fully integrated instruction manual with Fast-Start™ booklet. 1 year No Matter What™ guarantee. **Suggested List Price** \$299.95

**MFJ-1278BT Turbo** like the 1278 but with the fast 2400 baud packet. **Suggested List** \$369.95

**MFJ-1278BDSP** same as MFJ-1278B with DSP filter installed. **Suggested List** \$379.95

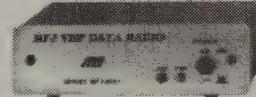
**MFJ-1270C Super TAPR Clone** known as the most reliable TNC. Thousands used as digipeaters, nodes, BBS—many in 24-hours-per-day applications for years without a failure. VHF and HF use. Free AC power supply. WeFAX gives weather map, mailbox expandable to 128k. Upgrade to 2400 or 9600 baud. Host Mode, KISS interface. 1 year No Matter What™ guarantee. Uses 12 VDC or 110 VAC. **HRO Price** \$114.95

**MFJ-1270CQ** 9600 baud TNC has all the features of the MFJ-1270C plus 9600 baud. **HRO Price** \$219.95

**MFJ-1276** all the features of the MFJ-1270C plus Pactor and 20 LED tuning indicator. **HRO Price** \$149.95

**MFJ-2400** baud modem for MFJ-1278 and TNC. **HRO Price** \$89.95

**MFJ-9600** baud G3RUH compatible modem for MFJ-1278 and TNC. **HRO Price** \$99.95



**MFJ-8621 Packet Only Data Radio.** Run all data rates through 9600 baud right out of the box!

Up to 5 watts output. Supplied with 145.01MHz crystal installed. Other plug in crystals available. 5-pin DIN for TNC input. Requires 12VDC.. **HRO Price** \$119.95

## TNC / Mike Switch

**MFJ-TNC / Mike Switch** Just push a button to switch between your TNC and mike! No more plugging and unplugging the mike. Pre-wired for most Kenwood, Icom and Yaesu rigs with 8-pin or modular phone jack.

**MFJ-1272B/1272M** for MFJ TNC \$34.95

**MFJ-1272BX/1272MX** for PK-232 \$39.95

**MFJ-1272BY/1272MYV** for KAM VHF \$39.95

**MFJ-1272BYH/1272MHY** for KAM HF \$39.95

**MFJ-1272BZ/1272MZ** for PK-88 \$39.95

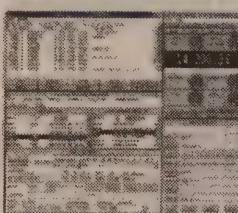
## Packet Software

**MFJ-1289 Multicom™** New 1278 software, bursting with features for IBM and compatibles: Gray level FAX, SSTV, color VGA Packet Picture, One-key Macros™, Call-Alert™, Auto-set™, Auto-router™, Packet Multiplex™, Multi-word™, RS-232 cable. **HRO Price** \$59.95

**MFJ-1282B Starter Pack** for C64/128 MultiCom64™. **HRO Price** \$39.95

**MFJ-1287B Starter Pack** for Macintosh MultiCom-Mac™. **HRO Price** \$49.95

## Windows Software



**NEW!**

MFJ station automation software finds DX, tunes your

rig and does your logging. With a few "point and clicks" of your mouse, this powerful WINDOWS software helps you find and identify on-the-air DX you need from PacketCluster networks; search your log to see if you have worked him before; automatically set up and tune your transceiver; work him with pre-stored messages. While you are working him you can log him; print his QSL card; search and update your awards and contest files. Logview Windows™, Packet Windows™ and Rig Windows™ are powerful ham radio automation software programs that makes operation fun, DXing competitive and not-so-fun detail effortless. Use them as an integrated package that unifies your transceiver, packet TNC and logging functions into a fully automated station. You can use them individually as stand alone programs and add other modules as you need them.

Model	Description	HRO Price
Individual Packages		
1681	Logview Windows	\$69.95
1682	Packet Windows	\$29.95
1683K	Rig Windows Kenwood	\$29.95
1683Y	Rig Windows Yaesu	\$29.95
1683I	Rig Windows Icom	\$29.95
Complete Package		
1680K	Kenwood	\$99.95
1680Y	Yaesu	\$99.95
1680I	Icom	\$99.95

MFJ's Transceiver-to-Computer Interface Cable has RS-232 serial interface built-in. Plug between your transceiver and computer serial ports and you have computerized control of your rig through Rig Windows™ software.

Model	Description	HRO Price
5383K	For most Kenwood rigs	\$49.95
5383Y	For most Yaesu rigs	\$49.95
5383I	For most Icom rigs	\$49.95

## Code Tutor

**MFJ-411 Pocket Size Morse Tutor.** Learn from zero code speed to Extra Class with customized code practice. Random, QSO mode, word recognition mode. Easy-to-use menu. Uses 9V battery. HRO Price \$79.95



**MFJ-557 Deluxe Code Practice Oscillator.** Features a Morse straight key on a non-skid heavy steel base with volume control, tone control, earphone jack, external speaker plug, 9 V battery (not included) or optional AC power supply. Built-in speaker, adjustable contacts. HRO Price \$24.95

## Keyers

### MFJ-422C Keyer/Bencher Paddle



MFJ-422C Keyer/Bencher Paddle combo makes a small, attractive unit that is a pleasure to use. Iambic keying, adjustable weight and tone, front panel volume and speed controls (8-50 WPM), dot-dash memories, sidetone, speaker and automatic or semi-auto/tune modes. Use 9 V battery or 110 VAC with optional MFJ-1312B. HRO Price \$134.95  
MFJ-422CX Keyer only. Mount to your Bencher paddle. HRO Price \$79.95



**MFJ-407C Deluxe Electronic Keyer** Dot-dash memories, self-completing dots and dashes, jam-proof spacing, RF proof, instant start. Single squeeze, or straight key. Controls include speed, weight, tone and volume. On/OFF, tune auto/semi-auto, built-in speaker, 9V battery (not included) or 110 VAC with optional MFJ-1305. HRO Price \$69.95

**MFJ-401C Econo Electronic Keyer II.** Similar to MFJ-407C but with external speed and volume controls, internal weight and tune controls. Use 9V battery (not included) or 110 VAC with optional MFJ-1312B. HRO Price \$49.95

**MFJ-492 Menu Driven Memory Keyer.** No keypad, no complex sequences to remember. Just



follow the menu. From the menu you can save and play messages, decrement serial numbers, set speed, weight, sidetone, iambic, semi-auto, handkey, message queue, paddle command modes — turn off on/off sidetone, transmitter tune, keying output on/off —select iambic A or B, reverse paddle, Morse trainer and store starting serial number. Commands can also be keyed from the paddle. Holds 192 characters in four soft sectored message memories. Expandable to more than 8000 characters in eight message memories. Memories have lithium battery backup. Front panel controls for speed (5-100 WPM) and volume. Built-in speaker for side tone. Direct and grid block keying output. Uses 9V battery or optional 110 VAC with MFJ-1312B. HRO Price \$109.95

**MFJ-493.** Like MFJ-492 but with 32K characters of memory. IBM keyboard input makes MFJ-493 into a keyboard. QSO simulator included. HRO Price \$139.95  
**MFJ-490 Memory Keyer/Bencher Combo.** Has all the features of the MFJ-492 except memory expansion. HRO Price \$164.95

**MFJ-490X.** MFJ-490 less the Bencher paddle. HRO Price \$99.95

**MFJ-451 Morse Keyboard.** Stand alone CW keyboard. 200 character type ahead buffer and two 100 character message memories. Use 12 VDC or optional MFJ-1312B. HRO Price \$99.95

**MFJ-452** like the MFJ-451 with 2-line 16 character LCD display. HRO Price \$149.95



**MFJ-432 Voice Keyer.** Lets you gain an unfair advantage during a contest by cloning your voice.

Built-in speaker. Mic jack and Mic cable. Has 4 nonvolatile message memories. Uses 9V battery or 110 VAC with optional MFJ-1312B. HRO Price \$99.95

## Station Accessories

**NEW!**



**MFJ-784 DSP Filter** automatically eliminates heterodynes, reduces noise and interference simultaneously on SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, WeFAX, FAX, weak signal VHF, EME, satellite. MFJ's tunable FIR linear phase filters minimize ringing, prevent data errors and have "brick wall" filter response with up to 60 dB attenuation just 75 Hz away. Only MFJ gives you 5 tunable DSP filters. Tune lowpass, highpass, notch, and bandpass including optimized SSB and CW filters. Vary the bandwidth to pinpoint and eliminate interference. Only MFJ gives you 5 factory preset filters, 10 programmable preset filters you can customize. The automatic notch filter searches for and eliminates multiple heterodynes. MFJ's advanced adaptive noise reduction silences background noise and QRN so much that SSB signals sound like a FM repeater. The automatic notch and adaptive noise reduction can be used with all relevant tunable and preset filters. AGC keeps audio level constant during signal fading. Has two watt amplifier, volume control, input level control, headphone and TNC jacks. Use 12 VDC or 110 VAC with optional MFJ-1315. HRO Price \$199.95



**MFJ-1116 Deluxe Multiple DC Power Outlet.** 8 outlets for powering accessories. Connects to 12 VDC power VDC power supply, monitors DC voltage with voltmeter, power switch and 15 amp fuse. 5-way binding posts with standard spacing for dual banana jacks. HRO Price \$44.95

**MFJ-1112** like MFJ-1116 without ON/OFF switch, voltmeter and fuse. 6-pair outlets. HRO Price \$29.95

**MFJ-1118 High Current Multiple DC Outlet.** Gives you two HF and/or VHF transceivers and six or more accessories from your transceiver's main 12 VDC power supply. Two pair of 30 amp binding posts RF bypassed and individually fused for transceivers. Six additional pair of binding posts are fused and handle a total of 15 amps. ON/OFF power switch and LED power indicator. 0-25 V monitor meter. 6 feet, eight gauge cable with ring tongue terminals. HRO Price \$64.95



**MFJ-624D Deluxe Hybrid Phone Patch** has prewired microphone connector, programmable for most radios. VOX/push-to-talk, RF pi-filters, and PC board construction eliminates RF feedback. VU meter, separate transmitter and receiver gain controls, null control, standard phone connection—RJ-11, jacks for speakers, audio in and audio out. Use 12 VDC, 9V battery (not included) or 110 VAC with optional MFJ-1312. HRO Price \$89.95

**MFJ-931 Artificial RF Ground** effectively places your rig near actual earth ground potential. Connects between your rig and random length of wire of a connecting ground wire. Tune for maximum ground current using the built-in RF ammeter. Covers 1.8 to 30 MHz. HRO Price \$79.95



**MFJ-701 RFI Free Choke Kit.** Four square ferrite toroids formulated for eliminating RFI from .5 to 200 MHz. Separates into tough snap-together plastic halves for easy winding. Package of 4. HRO Price \$14.95

## Clocks



**MFJ-114 Giant LED 24/12 Clock.** Four huge 2.3" red LED digits. Readable for 100 feet away. Wall mount or place on desk top with flip stand. User selectable 12 or 24 hour display format. Battery backup (batteries not included). 110 VAC operation. HRO Price \$39.95



**MFJ-112 DXer's World Map Clock.** Push-buttons let you move east and west on the map display to the time at any QTH throughout the world. Time display hour/minute/second. Also displays week, month, year and day of the week. User selectable for 12 or 24 hour display format. HRO Price \$24.95



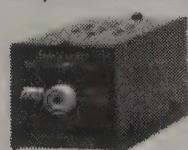
**MFJ-107B / 108B 12/24 Hour Clocks** Huge 5/8 inch bold LCD digits lets you see the time from anywhere in your shack. Choose from the dual clock that has UTC and local display or the single 24 hour clock. Mounted in brushed aluminum frame. Easy set. HRO Prices MFJ-108B \$19.95 MFJ-107B \$9.95

## Dummy Loads

**MFJ-250 1 kW Dummy Load** 50 ohm oil-filled dummy load. Low VSWR to 400 MHz. Rated 1 kW CW or 2 kW PEP for 10 minutes. 1/2 rating for 20 minutes. 200 watt CW or 400 watt PEP continuous. Includes high quality transformer oil (no PCB). HRO Price \$49.95



**MFJ-260C VHF/HF Air Cooled Dry Dummy Load.** Covers 0-160MHz. Handles 300 watts for 30 seconds. Has derating curves. SO-239 connector. HRO Price \$29.95

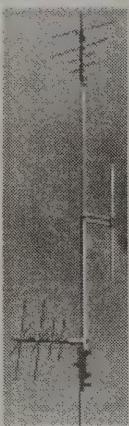


**MFJ-264 UHF / VHF / HF Dry Dummy Load** covers up to 650 MHz, usable to 750 MHz. Rated 1.5 kW for 10 seconds, 100 watts continuous. HRO Price \$59.95



**MFJ-704 Low Pass Filter** suppresses TVI, RFI, telephone and other interference. Handles full legal power with 2:1 SWR load for 1.8-30 MHz. HRO Price \$39.95

## HF Antennas



### HF Vertical Antenna No Radials

**MFJ-1798 Halfwave Vertical.** No radials needed. Covers 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 meters. You do not need ground radials or ground because of the effective counterpoise that is 12 feet across. You can mount it from ground level to roof top. The feed line is isolated from the antenna using MFJ's AirCore™ balun. Full size performance is achieved by using separate full size radiators for 2 through 20 meters and high efficiency end-loading for 30, 40 and 75/80 meters. UPS shipable.

Sugg. List \$269.95  
**MFJ-1796 6 Band Vertical**  
Sugg. List \$189.95

**MFJ-1798 10 Band Vertical.** Covers 75/80, 40, 30, 20, 17, 15, 12, 10, 6, 2 meters. Sugg. List \$189.95

### Super Hi-Q Loop 36" Diameter



**MFJ-1786 Super Hi-Q Loop Antenna.** Only 36 inches in diameter, it is the smallest high efficiency 10 to 30 MHz continuous coverage antenna ever made for ham radio. Features a round conductor that is more efficient than a flat strip. No control cable needed. All welded construction. Welded butterfly capacitor with no rotating contacts. It is totally portable. Built-in mounting bracket makes it easy to mount vertically or horizontally. Handles nominal 150 watts with low SWR.

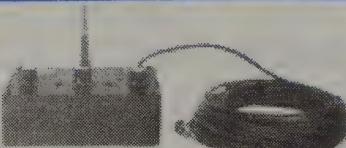


Remote control (included) with Automatic Band Selection, fast and slow tune, audio alert and built-in cross-needle SWR/wattmeter. Uses internal AA batteries (not included), 12 VDC or 110 VAC with optional MFJ-1312. Sugg. List \$299.95

**MFJ-1782 Super Hi-Q Loop Antenna.** Same as MFJ-1786 but with standard controller. Does not have SWR/wattmeter or Auto Band Selection. Suggested List Price \$269.95

**MFJ-1778 G5RV.** All bands 80 through 10 meters. Suggested List Price \$29.95

## Portable Antenna



**MFJ-1621 Portable Antenna** lets you operate in almost any location. Works 40, 30, 20, 17, 15, 12 and 10 meters by using a telescoping whip antenna that extends to 54 inches. Self-standing cabinet, built-in antenna tuner, field strength meter and 50 feet of RG-58 coax cable. Handles 200 watts. HRO Price \$79.95

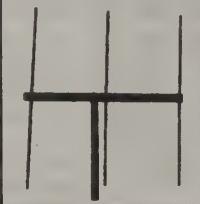
## VHF Antennas

**MFJ-1750 5/8 Wave Ground Plane** 300 watt antenna for 2 meters gives you maximum possible gain of any single element antenna. Shunt fed matching network

for lowest SWR over entire 2 meter and bleeds off unwanted static. Rapid-tune Radiator™, single U-bolt mounting, strong lightweight aluminum construction protected by Permanent Molecular Bonding Technology™ and 1 year No Matter What™ guarantee. HRO Price \$19.95  
**MFJ-1752 220 MHz** HRO Price \$19.95  
**MFJ-1740 1/4 Wave Ground Plane** HRO Price \$12.95



**MFJ-1768 Dual Band 144/440MHz Yagi.** 5 elements on 440MHz and 4 elements on 2 meters. Uses MFJ's exclusive dual band balanced feed system. Prevents pattern skewing and gives low SWR over both bands. Provides the convenience of feeding two Yagis with a single coax. Light weight (2 lbs.), easy to assemble. HRO Price \$49.95



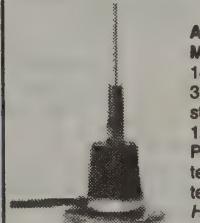
**MFJ-1763 Portable 3 Element Beam** for 2 meters. Easy to store, elements simply screw into the boom. Extra gain and directivity. Compact 2-3/4 foot boom gives you a calculated gain within 1 dB of a four element Yagi. Thick elements maintain high gain and directivity over virtually the

whole 2 meter band. A ferrite choke balun gives you excellent feedline decoupling. Coax coupling reduced by mounting the SO-239 connector behind the reflector. Mounts vertically or horizontally. Great for packet.

Protected by Permanent Molecular Bonding Technology™, 1 year No Matter What™ guarantee. Weighs 2

pounds, single U-bolt mounting. HRO Price \$39.95

**MFJ-1730 Pocket Roll-UP™** gets base station performance on the go with this half-wave 2 meter J-antenna that sticks in your pocket. The perfect gain antenna for traveling. Omnidirectional and significant gain over a 1/4 wave. Protected by 1 year No Matter What™ guarantee. HRO Price \$14.95

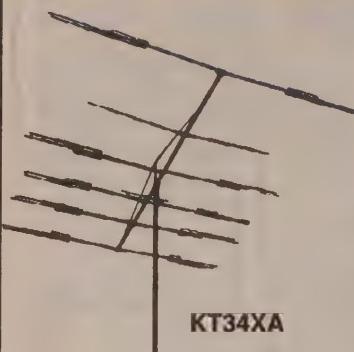


**A. MFJ-1728B 5/8 Wave 2 Meter Mobile Antenna** covers 144-174 MHz with low SWR. 300 watts, magnetic mount, stainless steel radiator. 12 feet coax cable with PL-259 connector. Protected by 1 year No Matter What™ guarantee. HRO Price \$24.95

**B. MFJ-1724B Dual Band Mobile Antenna** gives you quarter wave stainless steel whips for 2 meters and 440 MHz, magnetic mount, coax and connector. Low SWR 200 watt antenna. 15 feet of coax with a connector ready to plug into your rig. Protected by the 1 year No Matter What™ guarantee. HRO Price \$14.95

# KLM

## HF Antennas

**KT34XA**

### KT-34A / KT-34XA

The KT-34A and KT-34XA are pacesetters for triband performance. The four element KT-34A offers an unusually compact solution for a three-band high performance installation. The six element KT-34XA outperforms all other commercially available tribanders. The performance of these antennas comes from the application of lossless linear loading and high-Q air capacitors.

### Monobanders

"World Class Extra" antennas are designed to satisfy the serious DX operator. The 80M-3, 40M-4 and the 20 m, 15 m and 10m 6-element monobanders offer the ultimate in performance with no compromises. They are designed to achieve maximum gain, bandwidth and front-to-back ratios. All World Class Extra antennas use nonresonant Phillystran cable for element and boom-support.

### 160m Vertical

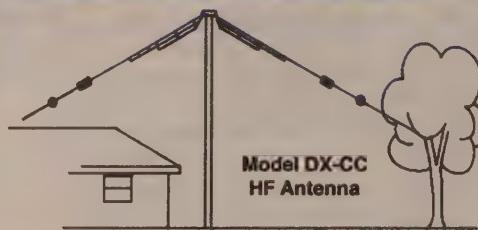
160V is center load for 160m. Use with ground or radials. A compact solution to your 160m needs.

### HF Log Periodic Antennas

KLM's Log Periodics offer extended coverage of the amateur bands. The 10-30-7LPA covers 20,15 and 10m plus the WARC bands. The addition of a 40M-1 dipole provides 40m as well and the antenna is the 7.2/10-30-7LPA. For continuous coverage from 6-30 MHz use the 6-30-15LPA. The 6-12-8LPA covers 6-12 MHz.

Call Toll-Free  
for HRO's KLM Prices

## ALPHA DELTA

**Model DX-CC  
HF Antenna**

Alpha Delta makes an assortment of limited space antennas. These all include stainless steel hardware where required, are fully assembled and are manufactured to withstand severe weather. All antennas have SO-239 connectors.

**Model DX-A** - A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. HRO Price \$59.95

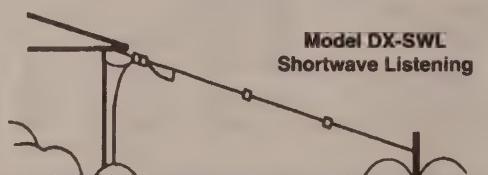
**Model DX-CC** - A no trap 80-40-20-15-10 meter dipole. 82' long. HRO Price \$99.95

**Model DX-DD** - A no trap 80-40 meter dipole. 82' long. HRO Price \$79.95

**Model DX-EE** - A no trap 40-20-15-10 meter dipole. Only 40' long. HRO Price \$89.95

### DX-B

The DX-B is a single wire, high performance quarter wave sloper antenna for 160, 80, 40 and 30 meters. Designed for limited space, the antenna requires only 60 feet for installation and should be used with a wide range antenna tuner. It comes pre-assembled and pre-tuned. It utilizes stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "iso-res" RF choke coils for efficient, 50 ohm coax feed. The DX-B is rated for full legal power. HRO Price \$69.95

**Model DX-SWL  
Shortwave Listening**

The DX-SWL model is the antenna tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multi-band transmit antenna with the appropriate antenna tuner. Overall length is 60 feet. Requires a single support. Uses standard coax to connect antenna to your radio. Feed point is 50 ohms and is an SO-239 connection. HRO Price \$69.95

## Butternut Antennas



## BUTTERNUT

### Multi-band HF Verticals HF2V

A self supporting vertical antenna for 40 and 80 meters. Features full automatic band switching using the Differential Reactance Tuning system. Accessory coils are available for 20 or 160 meters.

### HF6VX

Model HF6VX offers greater VSWR bandwidth, greater radiation at the lower wave angles than comparable antennas, and higher radiation resistance than trapped verticals. Unique design uses three reactance- generating L-C circuits instead of traps.

### Accessories for HF6VX

**A-17-12** 18 and 24 MHz (17-12 Meter) WARC band adapters with full automatic band switching for Butternut 5 and 6 band verticals. HRO Price \$49.95

**TBR-160-S** 160 meter adapter attaches to the base of Butternut HF2V and HF6V verticals for automatic band switching 160 through 10 meters. Results in slight reduction in 80 / 75m bandwidth. Rated at 500 watts. HRO Price \$89.95

**STR-II** Stub-tuned Radial Kit. Four radials for 40, 20, 15, and 10 meters, each 30 feet long and completely assembled with end insulators. Also includes coil of No. 16 copper-clad steel wire and insulators for four 30 meter radials and one 75 / 80 meter radial. HRO Price \$49.95

**RMK-II** Roof Mounting Kit for Butternut verticals. Includes 2-foot tripod tower, STR-II radial kit, mounting post sleeve, plated lag screws, and complete instructions. May be used on any brand of HF verticals. HRO Price \$69.95

**CPK** Counterpoise for the HF6V, HF6VX and HF9V-X. HRO Price \$69.95

### HF9V-X

The HF9V-X is a no-radial vertical that covers the amateur bands 6 through 75 / 80 meters. If you have no room for a radial system, install the HF9V-X over the CPK counterpoise kit. Like the HF6V, it uses longer active elements for higher radiation resistance and greater efficiency.

### "Butterfly" Beam HF5B

A compact 2-element beam for 10-12-15-17-20 meters. A good antenna where there are antenna restrictions.

Model	Bands	Ele	Max Gain	VSWR	Turn Radius ft (m)	Longest Element ft (m)	Boom Length ft (m)	Max Mst in (mm)	Wind Srvl mph	Ship Wgt lbs	Sugg. List
HF5B	10-15-20 m	2	3.5 dB	1.5:1	6.9 (2.1)	12.5 (3.6)	6 (1.8)	1.3 (38)	80	22	\$339.95
HF2V	40-80 m	1		1.5:1		32 (9.7)		1.3 (32)	60	17	\$200.95
HF6VX	10-80 m	1		1.5:1		26 (7.9)		1.3 (32)	80	12	\$219.95
HF9VX	6-80 m	1		1.5:1		26 (7.9)		1.3 (32)	80	14	\$329.95

# HF ANTENNAS

## VAN GORDEN

### Dipole Kits

Wire dipole antenna kits complete with a Hi-Q balun, copper antenna wire, ceramic antenna insulators, and 100-foot nylon support rope.

### Standard Length

Models D-10 for 10 meters, D-15 for 15 m, D-20 for 20 m, D-40 for 40 m, and D-80 for 75 / 80 m.

### Shortened

Models SD-40 for 40 m and SD-80 for 75 / 80 m.

### Parallel

These models are made of multiple dipoles connected at the center balun and fed at this one point. Model PD-8010 is for 10-80 meters, PD-8040 is for 40 and 80 m, PD-4010 is for 10-40 m, and PD-4020 is for 20-40 m.



### Insulators / Baluns

Egg insulators. Center and end insulators. 1:1 and 4:1 Baluns.

## Van Gorden Antennas

Model	Type	Band	Length ft (m)	Power PEP	Wire Size	HRO Price
D-10	Standard Dipole	10	16(4.9)	2KW	#14	\$25.95
D-15	Standard Dipole	15	22(6.7)	2KW	#14	\$26.95
D-20	Standard Dipole	20	33(9.9)	2KW	#14	\$27.95
D-40	Standard Dipole	15/40	66 (19.8)	2KW	#14	\$28.95
D-80	Standard Dipole	75/80	130 (39)	2KW	#14	\$31.95
ALL-BANDER	Standard Dipole	160-10 *	134 (40.8)	2KW	#14	\$29.95
SHORTY	Dipole	160-10 *	70(21)	2KW	#14	\$39.95
SD-40	Shortened Dipole	40	45 (13.5)	2KW	#14	\$33.95
SD-80	Shortened Dipole	75/80	90 (27)	2KW	#14	\$35.95
PD-8010	Parallel Dipole	10 to 80	130 (39)	2KW	#14	\$43.95
PD-8040	Parallel Dipole	15/40/80	130 (39)	2KW	#14	\$39.95
PD-4010	Parallel Dipole	10, 20, 15/40	66 (19.8)	2KW	#14	\$37.95
PD-4020	Parallel Dipole	20, 15/40	66 (19.8)	2KW	#14	\$33.95
G5RV	Dipole	3.5-30 MHz	102(31)	2KW	#14	\$49.95

\* Antenna tuner required

## MOBILE MARK™, INC. COMMUNICATIONS ANTENNAS

### Mobile Antenna Heliwhip / Kilowhip

The Heliwhip and Kilowhip Series are fiberglass molded continuously wound antennas for 10, 15, 20, 40 & 80 meters. The Kilowhip are high powered versions of the Heliwhip. Power handling is 100 W for the Heliwhip and 1 kilowatt for the Kilowhip.

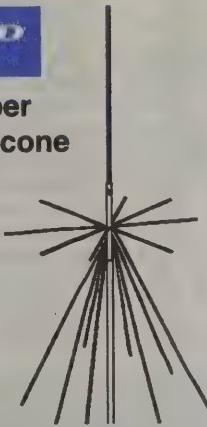
### Mobile Mark Antennas

Model	Center MHz	Bandwidth KHz	HRO Price
HW-80	3.8	50	\$32.95
HW-40	7.25	100	\$32.95
HW-20	14.2	250	\$32.95
HW-15	21.2	500	\$29.95
HW-10	29	1000	\$29.95
HW-6	52	2000	\$29.95
KW-10	28.6	800	\$49.95
KW-15	21.3	400	\$49.95
KW-20	14.2	250	\$49.95
KW-40	7.22	60	\$49.95

## DIAMOND ANTENNA

### D-130J Super Wideband Discone

Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz. All stainless steel. Input power 200 watts. Impedance: 50 ohms. VSWR: 1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. HRO Price \$99.95



### The Ultimate All-Band HF Mobile Antennas

### The Perth

The Perth is a 3-1/2 foot sleek stinger with a 4 foot main shaft where the taps are located. It has a very tough, yet flexible fiberglass core, helically wound with copper wire which is hand tuned to the various "tap" frequency points.

The Perth offers high performance with low wind drag. This low wind resistance allows the Perth to be easily mounted on the trunk lip, hatches, and bumper installations with a standard 3/8 X 24 stud. The sleek stinger retracts into the main shaft for easy stowage. With a proper ground plane, the Perth is also suitable for apartment and condo installations.

### Outbacker

There is no need to change coils when changing HF bands for mobile operation. The Outbacker™ is the answer for every mobile ham. The antenna comes in two models: a six foot version that handles up to 300 watts PEP and a four foot Junior model for up to 150 watts PEP.

The antennas are made of fiberglass and coated with smooth epoxy resin and polyurethane to provide strength, protection and durability. The pre-tuned copper helical winding has connection point sockets constructed of rust-free brass and clearly marked for each band. The antenna covers all bands from 10 to 80 meters.

Mount the antenna with a standard 3/8 X 24 thread. Use the Hustler BM-1 or SSM ball mounts. For ease of mounting there is an optional heavy duty spring and 2 inch base that can be mounted at the bottom of the antenna and attached to a PL-259 connector.

HRO stocks the Perth, three models of the Outbacker™ and the optional spring base:

Model	Description	HRO Price
Perth	150 watts PEP all bands	\$274.95
OB	Full size antenna, all bands, 300 watts PEP	\$259.95
OB-JR	Jr. size antenna, all bands, 150 watts PEP	\$229.95
OB-SB	Optional Heavy-Duty Spring and Base	\$82.95

## HF Tribanders



### Explorer 14 (395S)

Give your solid state transceiver a break; the Explorer 14 is the most broadbanded HF antenna around. Our exclusive Para-Sleeve design optimizes bandwidth without a tuner. Best performance on a 14' boom. A 30 or 40 meter add-on kit is available for added coverage. Suggested List Price \$605.95



### TH3Mk4 (388S)

The classic design in a small tribander. Performance and value in one small package. Perfect for home stations, this antenna is the choice for DXpeditions tool! Suggested list Price \$785.95



### TH7DX (391S)

Nothing performs like the world famous TH7DX! This high performance tribander gives you the competitive edge you want on 10, 15 and 20 meters.

Suggested List Price \$936.95

## Your Performance Advantage Innovation • Value • Customer Service

## VHF / UHF Base Antennas

### V42R (331S)

Expand your capabilities with this dual band performer. This omnidirectional antenna gives you 3 dBd gain on 2 meters as well as 5 dBd on 7 cm. Comes complete with a type N connector.

Suggested list Price \$152.95



### V4R (337S-1)

You can't beat this antenna! With wind survivability to 220 M.P.H., the V4R provides 3 dBd gain with a wide coverage pattern. It features two collinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 400-475 MHz and comes with a type N connector. Suggested list Price \$112.95



### V2R (335S-1)

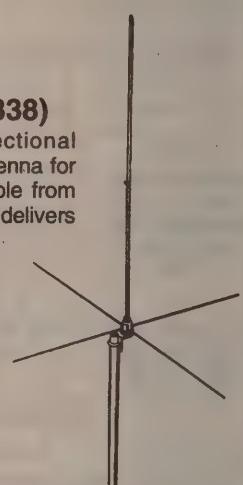
A rugged antenna for 2 meters, the V2R provides 3 dBd gain with a wide coverage pattern. It features two collinear 5/8 wave antennas fed in phase along with 2 sets of radials that decouple the lower radiator from the mast. Tunable from 138-175 MHz with wind survivability to 120 M.P.H. Suggested list Price \$117.95



### PGP-2B (338)

This omnidirectional ground plane antenna for 2 meters is tunable from 142-168 MHz and delivers gain if 1.2 dBd. A rugged antenna, it has wind survivability to 100 M.P.H.

Suggested list Price \$48.95



## Five HF Bands



### TH11DX (398S)

A unique design giving you the frequency coverage of a log periodic plus the performance of a monobander. Covers 10, 12, 15, 17 and 20 meters with one boom and feedline.

Suggested list Price \$1244.95



## HF Vertical

### DX88 (188S)

This HF all-band vertical combines 10, 12, 15, 17, 20, 30, 40 and 80 meter band coverage with ease of operation.

With edge-to-edge band (VSWR of less than 2:1 on all bands except 40 and 80 meters (where you select the resonant frequency), this performer features unique low-loss traps for efficiency and stainless steel hardware for reliability.

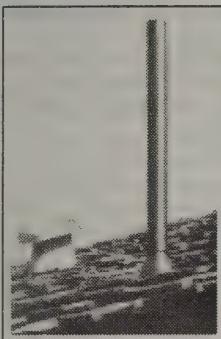
Suggested list Price \$319.95

## VHF/UHF Antennas

### The Forbes Group Ventenna™

Can you  
spot the  
antenna?

Neither  
can your  
neighbors.



At last a solution to antenna restrictions. The Ventenna™ quickly slips over your existing vent pipe and your signal really gets out! It is nearly invisible and is one of the most rugged antennas made. The VT-27 dual-band antenna is for 2 meters and 440 MHz. There are also single band models for 2 meters, 220 MHz and 440 MHz.

Model	Description	HRO Price
VT-14	2 meters	\$49.95
VT-22	220 MHz	\$49.95
VT-44	440-450 MHz	\$49.95
VT-27	2 meter / 440 MHz	\$74.95

### Swiech Communications Systems

#### 3 Element Beam For 2 Meters

The COY2M3EL is a black anodized, light weight 3 element beam antenna for 2 meters. It provides a 6.1 dB forward gain and an H-Plane beamwidth of 80 degrees. The bandwidth is 144-148 MHz with an SWR <1.7 at the band edges. Impedance is 50 ohms and it handles 200 watts. A great antenna for packet, public service, camping, T-hunting, Field Day or any portable operation. HRO Price \$64.95

Also available are the  
COY2M4EL: HRO Price \$74.95  
COY1.2 Beam: HRO Price \$109.95



#### 2-Meter Beams

Models 2M-16LBX, 2M-11 and 2M-4X.

#### 440 MHz Beams

Models 440-27, 432-16BA, 432-30LBX,  
440-14, and 440-6.



### Log Periodic Antennas

The CLP5130 antennas are high gain, wide band VHF/UHF log periodic beam antennas for horizontally polarized base station use. Use for amateur bands from 50 - 1300 MHz and FM broadcasting, scanning, VHF / UHF TV, air band communications, government application, and business bands.

The forward gain is 10 to 12 dB—10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band.

The antennas, constructed from high quality aluminum, have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

	CLP5130-1	CLP5130-2
Frequency	50-1300 MHz	108-1300 MHz
No. Elements	23	19
Power	500W PEP	500W PEP
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest element	9' 10"	4' 6"
Boom length	5' 9"	4' 6"
List Price	\$379.95	\$259.95

### Oscar Antennas



#### 2m Circular

Circular polarized models for 2m: **2M-14C** and **2M-22C**. Excellent for Oscar. Circular polarity switch included with each antenna.



#### 440 MHz Circular

Circular polarized models for 440 MHz: **435-18C** and **435-40CX**. Excellent for Oscar. Circular polarity switch included with each antenna.

### Maldol

Maldol produces high performance antennas for HF, VHF and UHF applications. There are antennas for the handheld, mobile operation and the base station. A complete line of mounts are available as well as roof mount towers.

Contact your HRO sales representative for a complete description and price of your chosen Maldol antenna product. Several are described here.

### ARTseries

The Art Series are 2m/70 cm dual band high performance mobile whip antennas. These use the "V-Match" system to ensure full power radiation. A 24K plate center pin reduces loss. The pop-out adapter lets the antenna tilt to avoid damage in low height situations.

Model	Gain dB	Lgth In.	Pwr Watts	Sugg. List
ARD-5B	-3.8	19.6	120	\$55.99
ARD-6	2.6/4.9	26.8	100	\$64.99
ARD-10B	3.0/5.5	34.8	120	\$69.95
ARD-16B	5.0/7.7	65.6	150	\$99.99

### Base Station Series

Model	Gain dB	Lgth Ft.	Pwr Watts	Sugg. List
HS-WX-1	4.5/7.2	6	200	\$99.99
HS-WX2	6.0/8.0	9	200	\$139.95
HS-WX5B	9.2/13.0	23	250	\$229.95

### Handheld Antennas

Model	Freq MHz	Lgth In.	Sugg. List
HS-2RB	146	4.4	\$13.99
HS-70RB	440	4.4	\$13.99
AH-209S	146/440	3	\$15.99
HS-702S	146/440	17.6	16.99
AH-210R	146/440	Telesc	49.99

### Fiberglass Masts

To provide proper horizontal boom insulation for OSCAR operation, KLM has two fiberglass masts: one 5 feet; the other 7.5 feet. Care should be taken in selecting the elevation rotator. The masts are too large for the Alliance U110 which is sometimes used. The masts will work with the Yaesu rotators.

A3S



### World Ranger Multi-Band Beams

The four element A4S with stainless steel hardware outperforms other beams in day-to-day operation and the tough competition of contests. It has achieved the success of DXCC in only two days. The combination of precisely tuned traps with excellent spacing to element length ratios make the A4S a proven winner. Designed for easy assembly, the A4S is light weight, built to last and has a clean profile to reduce wind load. The A3S, now with all stainless steel hardware, is the most popular three element three band beam available today. It has plenty of gain and good front to back ratio. Great performance is yours with a clean profile beam that can be mounted on a lightweight tower and rotor in a very small space. Rugged design features insure many years of trouble free operation.

**A3S** 10, 15, 20 meter 3 element, 8.0 dBd gain Yagi  
**A4S** 10, 15, 20 meter 4 element, 8.9 dBd gain Yagi

A3WS



### WARC Band Beam

The A3WS 3 element beam gives full performance on 12 and 17 meters. With the addition of our easy to use A103 add-on kit, it will also cover 30 meters. It needs only a lightweight tower and rotator or you can mount it above your existing tribander. A3WS features include pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware.

**A3WS** 18, 24 MHz 8 dBd gain Yagi  
**A103** 10 MHz (30 meter) kit for A3WS

### Rotatable Dipoles

#### SINGLE AND MULTIBAND

Our World Ranger Dipoles give bi-directional performance and rotatable convenience. You can mount them high and away from the trees for much better performance than a wire dipole. Our single and multi-band dipoles feature high-performance traps, heavy wall tubing and rugged hardware for years of reliable operation

D40	40 Meters	Dipole
D4	10, 15, 20, 40 Meters	Dipole
D3	10, 15, 20 Meters	Dipole
D3W	12, 17, 30 Meters	Dipole

Call Toll-free for  
Cushcraft Discounts



R7, R5

IT'S THE ONE YOU'VE ASKED FOR. Amateur radio's Most Popular vertical design now gives you 30 & 40 meters with NO GROUND RADIALS! Only 22 feet tall, the R7's small footprint and ground independence give you "mount-anywhere" flexibility. Assembly is a snap.

Automatic frequency selection and 7 short counterpoise rods let you concentrate on DXing, contesting or rag-chewing from your apartment, condo or motor home. Convenience is only one reason to own an R7. The main reason is performance—pile-up breaking power made possible by the R7's low angle of radiation. This might explain why so many hams with room to spare have chosen the R5 and now the R7.

Like the R5, your only connection to the R7 is the coax to your rig. Experience amateur radio's highest performance-to-size ratio—now on 30 and 40 meters—with the Cushcraft R7.

**R5** 20, 17, 15, 12, 10 meters

**R7** 40, 30, 20, 17, 15,  
12, 10 meters

R7

R5



AP8A

### AP8A Powerwave

This 8 band HF quarterwave features thick wall tubing and high tensile fiberglass for exceptional strength. The AP8A covers 10, 12, 15, 17, 20, 30, 40 and 80 meters and is designed for maximum performance using high quality components yet is priced for every ham's budget. Assembly is a snap using just a few basic tools.

The heart of the AP8A is the POWERWAVE TRAP which incorporates a time proven Cushcraft capacitor design. This results in compact traps with better frequency selectivity and 10% greater radiation efficiency.

The AP8A is constructed of heavy seamless aluminum and stainless steel hardware. Capacitor sections are sealed and bonded with adhesive lined heat shrink tubing. It stands 26 feet tall.

The AP8A is the most versatile quarterwave vertical for the amateur from novice to extra class. Ground radials are needed for optimum performance.

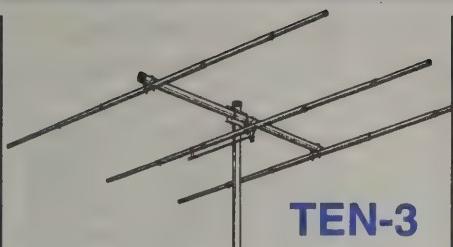
**AP8A** 10, 12, 15, 17, 20, 30, 40, 80M

**APR18A** Radial Kit  
(For use with AP8A or any other  
HF vertical)

22' Tall

17' Tall

# ANTENNAS



**TEN-3**

For 10 Meters

Our 3 element beam for the novice, technician or any ham who wants more gain with a good front-to-back ratio on 10 meters. This antenna is on an 8 foot boom making it easy to install on a very simple mount with only a lightweight rotator. The matching system is our proven Reddi-Match for 50 Ohm, no balun feed and SO-239 connector. Make more positive contacts with the TEN-3.

**TEN-3** 3 Element 8.0 dBd gain

## Dual Band Mobile CS-270M

The perfect companion for your dual band transceiver is our new **CS-270M**. It offers 3.7 dB gain on 2 meters and 6.0 dB on UHF in one compact 36.5 inch antenna

The base utilizes a unique matching network designed on a rugged P.C. board frame. A small phasing coil is insert molded into the antenna rod making it impervious to moisture. The magnetic mount features 90 pound pull, protective mylar pad, low loss feedline and PL-259 connector.



**10 Meter Mobile**

**CS28M** is an all new magnet mount mobile for 10 meters. It is an ideal companion to those new 10 meter multimode rigs. Cushcraft/Signals mobiles are recognized by professional users around the world for their rugged good looks and dependability. The antenna is complete with 49" stainless steel whip and spring and 90 pound pull chrome plated magnet with Protective Mylar® pad. Twelve feet of high quality RG-58AU coax and PL-259 connector. You'll be on the air in a matter of minutes, operating mobile to Munich and many more DX locations.

## VHF / UHF Mobile Antennas

Cushcraft high performance, better-value mobile antennas have sleek black ABS housings with stainless steel springs and tapered stainless whips. With 90 pound pull magnet. They will enhance the appearance of any vehicle.

CS50M	50-54 MHz	Magnetic Mount w/coax
CS147M	144-174 MHz	Magnetic Mount w/coax
CS220M	220-225 MHz	Magnetic Mount w/coax
CS45M	435-470 MHz	Magnetic Mount w/coax
CS1147M	144-148 MHz	Magnetic Mount w/coax
CS1450M	435-450 MHz	Magnetic Mount w/coax
CS270M	2m/70cm	Magnetic Mount w/coax

## Ringo The Choice for the Impossible QTH!

A combination of compact size and great bandwidth. Ringo half-wavelength verticals feature a low angle of radiation and direct DC ground for lightning protection. The Ringo is very easy to assemble and comes in a model for all popular VHF and UHF frequencies. Models AR-2 for 2 meters, AR-6 for 6, AR-10 for 10 meters and AR-220 for 220 MHz.

<b>AR-2</b>	135-160 MHz - 4' Tall
<b>AR-6</b>	50-54 MHz - 10' Tall
<b>AR-10</b>	28-29.7 MHz - 18' Tall
<b>AR-220</b>	220-225 MHz - 3' Tall



**AR-10**

**20-4CD**

## 70 cm, 2 & 6 Meter Yagis

The performance of these antennas will please you! They are lightweight, durable, and can have you on the air in a short time. Good bandwidth, tapered length elements, 50 Ohm no balun feed with SO-239 connector and protective boot are a few of the features. You'll hear many of these fine antennas still on the air more than 25 years.

<b>A144-7</b>	7 Element	144-146 MHz Yagi - 8' boom
<b>A148-10S</b>	10 Element	144-148 MHz Yagi - 12' boom
<b>A430-11</b>	11 Element	430-435 MHz Yagi - 5' boom
<b>A50-3S</b>	3 Element	50-54 MHz Yagi - 6' boom
<b>A50-5S</b>	5 Element	50-54 MHz Yagi - 12' boom
<b>A50-6S</b>	6 Element	50-54 MHz Yagi - 20' boom



**A50-5S**

## Skywalker HF Yagis

The choice of DX'ers worldwide. These single band Yagis are computer optimized to give maximum gain for their boom lengths, with very clean patterns. The 50 Ohm matching system with SO-239 connector easily handles maximum legal power.

Skywalkers are very heavy duty with 2" diameter pinned booms and .058 wall aluminum tubing throughout. The elements are fully adjustable to optimize performance on any band segment. They feature all stainless steel hardware. Winners of the largest ever combined score in the CQ WW DX contest.

Either single or stacked Skywalkers will improve the performance of your station.

<b>10-3CD</b>	3 Element	8 dBD gain	10 Meters
<b>10-4CD</b>	4 Element	10 dBD gain	10 Meters
<b>15-3CD</b>	3 Element	8 dBD gain	15 Meters
<b>15-4CD</b>	4 Element	10 dBD gain	15 Meters
<b>20-3CD</b>	3 Element	8 dBD gain	20 Meters
<b>20-4CD</b>	4 Element	10 dBD gain	20 Meters
<b>40-2CD</b>	2 Element	5.5 dBD gain	40 Meters

## 4-6-10-11-20 Element FM Yagis

Cushcraft FM Yagis are specifically cut for FM amateur frequencies and vertical polarization. Our four and six element models have end brackets for tower or mast side mounting. They feature Reddi-Match driven elements with direct 50 Ohm feed, compact size, good gain, and front-to-back ratio. And you can count on quick and easy assembly. Models include 124WB, A148-10S, A449-6S and A449-11S.

These antennas are great for packet operation.



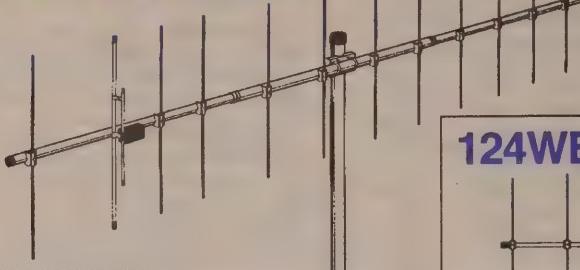
**A449-6**

Enjoy the new popularity and exciting contacts on the 6 meter band with one of the S-series Cushcraft Yagis.

Computer aided modeling and stainless steel hardware were used by Cushcraft engineers to further optimize the performance of our popular 6 meter Yagis.

<b>124WB</b>	4 Element	144-148 MHz - 4' boom
<b>A148-3S</b>	3 Element	146-148 MHz - 3' boom
<b>A148-10S</b>	10 Element	144-148 MHz - 12' boom
<b>A148-20S</b>	20 Element	144-148 MHz - 12' boom
<b>A449-6</b>	6 Element	440-450 MHz - 3' boom
<b>A449-11</b>	11 Element	440-450 MHz - 4' boom

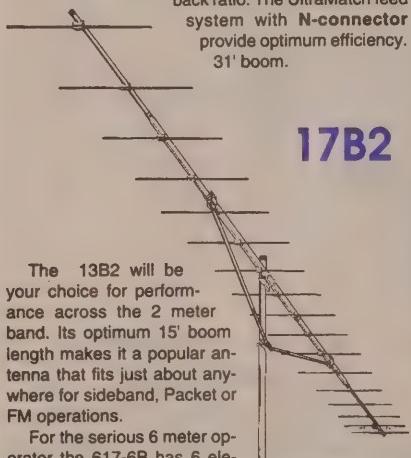
Vertically and Horizontally Polarized  
**A148-20T** 20 Element 144-148 MHz - 11' boom



## VHF / UHF Boomers

Antennas so efficient, powerful and successful that they defy comparison. They have established new VHF/UHF distance records and their computer based design has become the standard for others to copy.

There are 2 new Boomers for the 2 meter band! The all new 17B2 has a forward gain of 18.0 dBd with an incredibly clean pattern and excellent front to back ratio. The UltraMatch feed system with N-connector provide optimum efficiency. 31' boom.



## 17B2

The 13B2 will be your choice for performance across the 2 meter band. Its optimum 15' boom length makes it a popular antenna that fits just about anywhere for sideband, Packet or FM operations.

For the serious 6 meter operator the 617-6B has 6 elements on a 34 foot boom and 15.8 dBd gain.

The 220 MHz band features the all new 224WB 4 element and 225WB 15 element for FM simplex and repeater operation. The 220B is for the serious DX'er. At 70 cm you can choose the band opening 424B, 7.6 wavelength 18.2 dBd gain Boomer.

All Cushcraft Boomers are built with stainless steel hardware, ultraviolet stabilized element insulators and the balun is included.

124WB	144-148 MHz	4 elements - SO-239
13B2	144-148 MHz	13 elements - N conn.
17B2	144-145 MHz	17 elements - N conn.
26B2	144-148 MHz	26 elements - SO-239
220B	220-223 MHz	17 elements - SO-239
224WB	220-225 MHz	4 elements - SO-239
225WB	220-225 MHz	15 elements - SO-239
424B	429-435 MHz	24 elements - N conn.
617-6B	50-51 MHz	6 elements - SO-239

## Four Pole Vertical Arrays

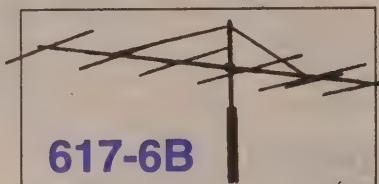
Cushcraft's four halfwave dipole array is excellent for use as a primary repeater antenna or as a powerful and flexible base antenna. The arrays give 6 dBd omni and 9 dBd cardioid gain. They are complete with dipoles, hardware, mounting booms and harness for 50 ohm feed. They direct side mount to tower legs or on a separate support mast, which can be 1.5 inch to 2 inch steel pipe. The support mast is not supplied.

- AFM-4DA 144-148 MHz - 23' tall
- AFM-24DA 220-225 MHz - 15' tall
- AFM-44DA 435-450 MHz - 8' tall

## 13B2

## 124WB

Ideal for Packet!



## 617-6B

## A270-10S

## 2m - 70cm Dual-Band

This antenna is the latest from Cushcraft. It offers full dual-band coverage for 2m and 70cm in one package. There are 5 elements on each band for up to 10 dB forward gain. For convenience it come in an end mount package.

## New Fast Action Gas Discharge Lightning Arresters



## LAC-4

Protect your valuable equipment while reducing atmospheric noise with these sophisticated new lightning arresters. They feature fast action, replaceable gas discharge elements. Superior design and manufacturing gives better performance with less insertion loss.

LAC4	200 Watt with SO-239 connector
LAC4H	2 kW with SO-239 connector
LAC4N	200 Watt with N-connector
LAC4NH	2 kW with N-connector
LC2	200 Watt replacement cartridge
LC2KW	2 kW replacement cartridge

## Blitz Bug

User proven, full-time coaxial lightning protector. Precision machined Blitz Bug features a sealed air chamber, constant static drain and controlled voltage discharge. Rated at 2 kW PEP to 500 MHz; has negligible insertion loss. Model LAC-1 has one PL-259 and one SO-239 connector. Model LAC-2 has two SO-239 connectors. Call Today for HRO's Low Prices!!

## AR-270 Dual Band Ringo

The highest performance-to-size ratio is yours with this rugged package. This great "invisible" antenna for condos and other restrictive QTH's will be up and running in the time it takes to tighten two clamps and a PL259. AR-270 is your best overall choice for repeater, simplex, packet or micro-sat operation. Stands only 4' tall.



## AR-270

## ARX-2B

## Ringo Ranger

II

Ringo Ranger II (ARX-2B) has more gain, less wind load and better mechanical strength than most other 2 meter antennas. You'll find FM repeater or simplex and packet operation more satisfying with this amazing antenna.

Three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub give 7 dB gain over a 1/4 wave whip. The antenna has RF decoupling radials and a built in coaxial lightning arrester.

There are more Ringo Rangers in use than ANY OTHER base station ham antenna.

Improve your station with a Ringo Ranger. The base antenna used more than any other; a proven performer. ARX-2B is 14' tall.



## Ringo Ranger

A fantastic antenna. The Ringo Ranger should be your antenna where good gain is required, but space does not allow extra height and decoupling radials. 4.5 dB gain. Model ARX-2. 9.3' tall.

## Polarity Switcher PS4

Optimize your UHF uplink signal with the PS4 polarity switch. It mounts easily to your 416-TB UHF Yagi. Just supply 12 volts DC and you're ready to go.

## Call HRO

For Discounts on  
Cushcraft Antennas

# ANTENNAS

## Cushcraft HF Antennas

Model	Bands	Ele	Max Gn dBD	MaxFB dB	SWR	Turn Rad ft(m)	Longest Ele ft(m)	Boom Lgth ft(m)	Boom Dia in (mm)	MxMst in (mm)	Surface sq ft(sq m)	Ship Wgt lbs	Sugg. List
A3S	10/15/20 meters	3	8	25	1.2:1	15.5 (5.6)	27.75 (8.3)	14 (4.2)	1.5 (38)	2 (51)	4.36 (.47)	27	\$496.95
A3WS	12/17 meters	3	8	25	1.2:1	14.4 (4.4)	25.1 (7.66)	14 (4.27)	1.5 (38.1)	2 (51)	4.1 (.38)	23	\$390.95
A4S	10/15/20 meters	4	8.9	25	1.2:1	18.4 (5.6)	32 (9.75)	18 (5.4)	2.0 (51)	2 (51)	5.5 (.51)	37	\$596.95
AV-3	10/15/20 meters	1			1.2:1		14 (4.2)ht		1.375 (35)	1.75 (45)	1.02 (.1)	7	\$121.95
AV-5	10/15/20/40/80 meters	1			1.2:1		25 (7.4)ht		1.375 (35)	1.75 (45)	1.89 (.19)	10	\$218.95
AP-8A	10/12/15/17/20/30/40/80 meters	1			1.2:1		26 (7.92)ht		1.375 (35)	1.75 (45)	1.7 (.16)	10	\$273.95
R-5	10/12/15/17/20 meters	1	3 *		1.2:1		17 (5.2)ht		1.75 (44)	1.75 (45)	1.4 (.13)	8	\$370.00
R-7	10/12/15/17/20/30/40 meters	1	3 *		1.2:1		22.5 (6.9)ht		1.75 (44)	1.75	2.3 (.2)	13	\$510.00
AR-10	10 meters	1	3.75		1.2:1		17.6 (5.3)ht		1.25 (32)	1.25 (32)	1.68 (.17)	4	\$70.95
20-4CD	20 meters	4	10	30	1.2:1	23.75 (7.2)	36.1 (11.0)	32 (9.75)	2.13 (54)	2 (51)	8.1 (.75)	55	\$625.95
20-3CD	20 meters	3	8	30	1.2:1	20 (6.1)	35.9 (10.9)	20 (6.1)	2.0 (51)	2 (51)	5.5 (.51)	30	\$437.95
40-2CD	40 meters	2	5.5	20	1.2:1	23.93 (7.29)	43 (12.9)	23 (6.9)	2.13 (54)	2 (51)	6.38 (.57)	44	\$625.95
TEN-3	10 meters	3	8	25	1.2:1	10 (3.01)	17.8 (5.43)	8 (2.44)	1.38 (35)	2 (51)	2.0 (.2)	10	\$150.95
10-3CD	10 meters	3	8	30	1.2:1	10 (3.05)	17.66 (5.38)	10 (3.1)	1.63 (41)	2 (51)	2.3 (.21)	11	\$232.95
10-4CD	10 meters	4	10	30	1.2:1	11.5 (3.5)	17.58 (5.34)	16 (5.18)	1.75 (44)	2 (51)	3.1 (.29)	18	\$299.95
15-4CD	15 meters	4	10	30	1.2:1	15.5 (4.72)	23.33 (7.11)	20 (6.10)	2.0 (51)	2 (51)	4.5 (.42)	25	\$353.95
15-3CD	15 meters	3	8	30	1.2:1	13.5 (4.11)	23.26 (7.06)	14 (4.27)	2.0 (51)	2 (51)	3.4 (.32)	20	\$304.95
D3W	12/17/30 meters	1			1.2:1	17 (5.18)	34(10.36)			2 (51)	.9 (.08)	11	\$248.95
D3	10/15/20 meters	1			1.2:1	13 (3.96)	25.7 (7.83)			2 (51)	.9 (.08)	9	\$243.95
D4	10/15/20/40 meters	1			1.2:1	18 (2.49)	35.8 (10.91)			2 (51)	1.3 (.12)	13	\$330.95
D40	40 meters	1			1.2:1	21 (6.40)	42.25 (12.87)			2 (51)	1.3 (.12)	12	\$296.95

ht= height

\* dBi

## Cushcraft VHF / UHF Antennas

Model	Bands	Ele	Max Gain dBD	Max F/B dB	Polarization	Turn Rad ft (m)	Long Ele ft (m)	Boom Lg ft (m)	MxMst in (cm)	Surface sq ft (sq m)	Ship Wgt lbs	Sugg. List
124-WB *	144-148	4	10.2	24	Either	4 (1.2)	3.4 (1.0)	4 (1.2)	2.0 (5.0)	.34 (.03)	3	\$72.95
13B2	144-148	13	15.8	26	Either	8.9 (2.7)	3.4 (1.0)	15 (4.6)	2.0 (5.0)	1.8 (.17)	7	\$142.95
224-WB *	220-225	4	10.2	24	Either	3 (.9)	2.2 (.67)	3 (.9)	2.0 (5.0)	.23 (.02)	2	\$67.95
225-WB	220-225	15	15.5	24	Either	5.8 (1.8)	2.2 (.67)	10 (3)	2.0 (5.0)	.95 (.09)	6	\$148.95
26B2	144-148	26	18.8	26	Vertical	10.4 (3.2)	3.4 (1.0)	15 (4.6)	2.0 (5.0)	4.8 (.5)	22	\$405.95
A148-3S	2 m	3	7.8	25	Either	2.8 (.85)	3.3 (1.0)	2.8 (.85)	2.0 (5.0)	.27 (.02)	1.5	\$46.95
A148-10S	2 m	10	13.2	24	Either	6 (1.8)	3.3 (1.0)	12 (3.6)	2.0 (5.0)	1.21 (.11)	6	\$85.95
A148-20S	2 m	20	16.2	24	Either	6.6 (2.1)	3.3 (1.0)	12 (3.6)	2.0 (5.0)	2.8 (.37)	15	\$232.95
A148-20T	2 m	10	11.1	20	Dual	6.8 (2.0)	3.3 (1.0)	10.8 (3.2)	1.5 (3.8)	1.42 (.13)	7	\$118.95
17B2	144-145	17	18	26	Horizontal	17.3 (5.3)	3.4(1.0)	31 (9.5)	2.0 (5.0)	3.9 (.4)	16	\$246.95
220-B	220-223	17	17.2	30	Horizontal	9 (2.6)	1.1 (.34)	19 (5.8)	2.0 (5.0)	2.6 (.24)	11	\$181.00
424-B	424-435	24	18.2	30	Horizontal	10 (3.1)	1.1 (.34)	17.4 (5.3)	2.0 (5.0)	2.3 (.21)	5	\$155.00
A449-6S*	440-450	6	10.5	18	Either	2.9 (.88)	1.1 (.34)	2.9 (.88)	2.0 (5.0)	.3 (.03)	3	\$59.95
A449-11S	440-450	11	13.2	20	Either	2.8 (.8)	1.1 (.34)	4.2 (1.4)	2.0 (5.0)	.39 (.04)	4	\$83.95
A50-3S	6 m	3	8	20	Horizontal	6 (1.8)	9.8 (3.0)	6.0 (1.8)	2.0 (5.0)	1.8 (.17)	7	\$110.95
A50-5S	6 m	5	10.5	24	Horizontal	7.5 (2.3)	9.8 (3.0)	12 (3.7)	2.0 (5.0)	2.7 (.25)	11	\$161.95
A50-6S	6m	6	11.6	26	Horizontal	11 (3.4)	9.8 (3.0)	20 (6.1)	2.0 (5.0)	4.5 (.4)	18	\$299.95
617-6B	6 m	6	14	30	Horizontal	17.7 (5.4)	9.5 (2.9)	34 (10.4)	2.0 (5.0)	4.8 (.45)	26	\$399.95
AFM-4DA	144-148	4	6/9 dB		Vertical		23 (7) ht		2.0 (5.0)	2.54 (.24)	7	\$148.95
AFM-24DA	220-225	4	6/9 dB		Vertical		15 (4.6) ht		2.0 (5.0)	1.85 (.17)	6	\$131.95
AFM-44DA	435-450	4	6/9 dB		Vertical		8 (2.4) ht		2.0 (5.0)	1.13 (.10)	5	\$114.95
AR-2	135-160	1	3.75 dB		Vertical		3.9 (1.2) ht		1.25 (3.2)	.21 (.02)	2	\$49.95
ARX-2	137-160	1	4.50 dB		Vertical		9.3 (2.8) ht		1.25 (3.2)	.33 (.03)	4	\$60.95
ARX-2B	134-164	1	7.00 dB		Vertical		14 (4.2) ht		1.25 (3.2)	.5 (.046)	6	\$72.95
ARX-220B	220-225	1	7.00 dB		Vertical		9.3 (2.8) ht		1.25 (3.2)	.3 (.03)	5	\$72.95
AR-270	144-148 440-450	1	3.7 5.5		Vertical		3.75 (1.13)ht		2.0 (5.0)	.27 (0.03)	2	\$87.95
AR-270B	144-148 440-450	1	5.5 7.5		Vertical		7.7 (2.3)ht		2.0 (5.0)	.47 (0.05)	3	\$125.00
ARX-270N	144-148 430-450	1	9.0 12.0		Vertical		16.5 (5.07)ht		2.0 (5.0)	.95 (0.09)	5	\$273.95
A270-10S*	144-148 440-450	5	10.0 10.0	20.0 18.0	Either	6 (1.8)	40.3 (102.4)	6.17 (1.9)	2.0 (5.0)	.725 (.07)	2	\$99.95
ARX-450B	435-450	1	7.00 dB		Vertical		5 (1.5) ht		1.0 (2.5)	.2 (.02)	1	\$72.95
AR-6	6m	1	3.75 dB		Vertical		10.1 (3.1)ht		1.25 (3.2)	.37 (.03)	3	\$70.95
CS-270M Mobile	144-148 440-450	1	3.70 dB 6.00 dB		Vertical Mobile		34 inches .88)				5	\$88.95

\* End mount Antenna    ht= antenna height



## Multiband HF Verticals

### 6-BTV / 5-BTV / 4-BTV

Models 6-BTV (10, 15, 20, 30, 40, 75 / 80 meters), 5-BTV (10-80 meters), and 4-BTV (10-40 meters) for base stations. All of these vertical antennas allow full legal limit on SSB or CW. The antennas are constructed of 1 1/4" heavy wall, high strength aluminum. Feed with 50 ohm coax. VSWR 2:1 or better at band edges on 10-40 meters and up to 100 kHz on 75 / 80 meters.

### 30-MTK

Add the 30 meter band to the 4-BTV or 5-BTV with the 30-MTK. This will provide full band coverage of the 30 meter band and will not affect normal operation of the other bands. The modification is easy to install with all hardware required included. HRO Price \$41.95

## 2m Verticals

### G7-144

The G7-144 is designed for fixed station or repeater operation. The antenna provides 7dB gain with an extremely low angle of radiation. It is constructed of high strength aluminum and fiberglass using stacked 5/8 wave radiators. Uses a type "N" connector.

**G6-144B**

### G6-144B

The G6-144B is a 6dB gain antenna for base or repeater use. The antenna is totally self supporting and is constructed of high-strength aluminum. Uses an SO-239 connector.

## 220 & 440 Verticals

### G7-220

The G7-220 is of similar design and construction as the 2 meter G7-144. It is designed for base or repeater operation, provides 7dB of gain and is constructed of high-strength aluminum and fiberglass. Uses a type "N" connector.

### G6-440

The G6-440 is a 6dB gain antenna for base or repeater usage for the 440 MHz band. It is provided with the vertical component assembled. The antenna is constructed from high-strength aluminum and fiberglass. Uses a type "N" connector.

The G6-270 delivers reliability and performance Beyond Your Expectations!  
Sugg. List  
**\$189.95—Call for Quotes**

**G6-270R**

## NEW G6-270R Dual Band

The high performance of our well known G6-144 and G6-440 are combined in our new 2 m / 440 dual band vertical, model G6-270R. A sleek, one piece tapered fiberglass radome eliminates the intermodulation and mechanical problems associated with two and three piece UHF radome designs.

Made in the U.S.A. of high quality American materials, the G6-270R offers 6 dBd gain (8.1 dBi) on both bands for outstanding fringe area performance. The antenna is shunt-fed and DC grounded for lightning protection and will survive winds to 100 mph. It is factory tuned for quick and easy installation.

### Electrical

Max. Power:	200 watts
Gain:	6dBd VHF
	6dBd UHF
Bandwidth:	3 MHz VHF
	10 MHz UHF
Design:	5/8 over 5/8 VHF
	4 x 5/8 UHF
Termination:	Shunt-fed D.C. Ground
	Type N female

### Mechanical

Length:	100 inches
Weight:	6 lbs
Wind Survival:	100 mph
Mounting:	Hardware included for 1-1/2" mast. Mounting plate will accept 2" U-bolts (U-bolts not included)

## Hustler Antennas

Model	Bands	M x Gn	VSWR	Radial lgh in (mm)	Height ft (m)	Boom Dia in (mm)	Max Mst in (mm)	Wind load lbs (kg)	Ship Wgt lbs (kg)	Sugg. List
6-BTV	10-30-80 m	-	1.2:1	20.3 (506)	24 (7.2)	1.3 (31.3)	1.5 (38.1)	31 (14.1)	17	\$209.95
5-BTV	10 to 80 m	-	1.2:1	20.3 (506)	25 (7.5)	1.8 (43.8)	1.5 (38.1)	29 (13.2)	17	\$179.95
4-BTV	10 to 40 m	-	1.2:1	14.8 (369)	21.4 (6.4)	1.3 (31.3)	1.5 (38.1)	24 (10.9)	15	\$134.95
G7-144*	2 m	7 dB	1.5:1	-	15.3 (4.6)	-	1.8 (43.8)	26 (11.8)	10	\$189.95
G6-144B	2 m	6 dB	1.15:1	-	9.8 (2.9)	-	1.8 (43.8)	26 (11.8)	7	\$129.95
G7-220*	220 MHz	7 dB	1.2:1	-	10.2 (3.0)	-	1.8 (43.8)	26 (11.8)	7	\$189.95
G6-440*	440 MHz	6 dB	2.1:1	-	7.3 (2.2)	-	2.0 (50.8)	22 (10.0)	5	\$169.95

\* Type "N" Connector

## Hustler VHF / UHF Mobile Antennas

Model	Band	Max Gain	SWR	Power	Length ft (m)	Weight lbs	HRO Price
RX-440	440 MHz	5.2 dB	1.2:1	100 W	2.3 (.72)	3	\$24.95
CGT-144	2 m	5.2 dB	1.15:1	200 W	7.1 (2.1)	2	\$51.95
RX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	\$24.95
FX-2	2m	3.4dB	1.5:1	100 W	4.2(1.3)	3	\$33.95
SF-2	2 m	3.4 dB	1.2:1	100 W	4.2 (1.3)	1	\$14.95
UGM	140-500 MHz	Unity				1	\$21.95
SF-220	220 MHz	3.4 dB	1.2:1	100 W	2.6 (.78)	1	\$14.95

• • • • • Call Toll-Free For Discount Prices on Hustler Products • • • • •

## VHF / UHF Mobiles

### Collinear

The CG-144 and CG-220 are 5.2dB gain collinear antennas for 2m and 220 MHz respectively. These antennas mount with 3/8"x24 thread which will fit the standard Hustler mounts. The CGT-144 and CGT-220 are supplied with a heavy duty trunk mount, 17' of coax and PL-259 connector.

### 5/8 Wave

Hustler manufactures two series of mobile antennas for 2m and 220 MHz and one for 440 MHz. The FX series comes with a heavy duty magnetic mount and the RX series has a standard duty mount. The antennas are base loaded with a 5/8 wave whip. The FX-2, FX-220, RX-2, RX-220 and RX-440 have black bases and chrome whips.

### SF-2 / SF-220

These two antennas are for 2m and 220MHz respectively. Each is a base loaded 5/8 wave antenna. These antennas will mount to all the Hustler mounts.

### UGM

A magnetic-mount antenna for the traveler. Trim it to operate as a 1/4 wave on 2m, 220 or 440. The mount is supplied with 7' of mini-coax and a BNC connector installed. Attaches directly to most handhelds. The antenna has a chrome base and stainless steel whip.

## HF Resonators

There are two types of resonators for HF operation. The standard units are rated to 400 Watts SSB while the supers are rated at 1 KW SSB. In addition to the power differences, the usable band width of the Super resonators is 100 percent wider on some bands. See the resonator table below for details.

## Mounting HF Mobiles

The HF resonators described require some consideration when mounting.

### Mount

A bumper (BM-1) or ball type (C32, SSM-1 or SSM-2) mount is required. Magnetic or trunk type mounts will not hold the weight or wind load.

### Mast

All of the resonators must be mounted on top of one of the Hustler masts (MO-1, MO-2, MO-3 or MO-4). The MO-1 and MO-2 hinge to allow for travel or low clearances. The MO-1 is for deck or fender mounting and folds at 15° above the base. The MO-2 is for bumper mounting and folds at 27° above the base. The MO-3 is a fixed length mast for use where it will not be necessary to fold over the antenna.

Hustler has a new mast, the MO-4 for installations requiring a short mast. The mast is just 22 inches tall. Use standard resonators and whips on 40 and 75m. Use standard resonators on 10, 15 and 20 meters with the new whips provided with the MO-4.

## Hustler Resonators

Model	Type	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	\$15.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	\$15.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	\$15.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	\$15.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	\$21.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	\$21.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	\$24.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	\$24.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	\$26.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	\$26.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	\$23.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	\$24.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	\$28.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	\$35.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	\$49.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	\$49.95

## Mounting Accessories

### Trunk Mounts

Three trunk mounts are available (HLM, HOT and TLM). All bases accommodate the 3/8"x24 thread and come with 17' of low-loss coax with connectors installed. The mounts are for use with VHF and UHF antennas. Do NOT use with the HF mobile antennas.

The **HLM** is specifically for hatch and slanted back vehicles. It has a built-in 180 degree adjustable swivel. The **HOT** is an easy on/off base--just spin the knob. The mount cannot be removed while the trunk is closed. It also features a 180 degree swivel. The **TLM** requires no holes to install. It mounts on flat, horizontal surfaces. The **RVM** is for recreational vehicles.

### Bumper Mount

Use the **BM-1** bumper type mount with all Hustler mobile antennas including HF. It uses two "J" bolts and a stainless steel strap that will fit bumpers up to 18". It will not fit the molded, plastic bumpers found on some vehicles. The mount comes with a stainless steel ball. Use the L14-144 (12 foot) or L14-240 (20 foot) coax sets to attach directly to the bottom of the ball mount.

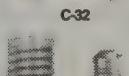
### Other Accessories

C-32	Chrome Plated Ball Mount	\$11.95
SSM-1	Ball Mount and Spring	\$46.95
SSM-2	Ball Mount	\$26.95
SSM-3	Stainless Steel Spring	\$24.95
RSS-2	Resonator Spring	\$9.95
QD-2	Quick Disconnect	\$19.95

## Hustler Mounts

Model	Base Thread	Coax ft (m)	Swivel	Weight lb	HRO Price
BM-1	3/8" x 24	optional	180°	2	\$19.95
HOT	3/8" x 24	17 (5.1)	180°	1.9	\$29.95
TLM	3/8" x 24	17 (5.1)		1.9	\$20.95
HLM	3/8" x 24	17 (5.1)	180°	1.7	\$22.95
RVM	3/8" x 24	17 (5.1)	180°	1.9	\$20.95

## Mobile Mounts



Hustler has a collection of mounts and accessories for attaching your antennas to your vehicle. The most common are described below.

**C-32** Chrome-plated ball mount  
**C-30** Chrome-plated spring  
**SSM-3** Stainless steel spring

**SSM-1** Professional ball mount and spring  
**SSM-2** Ball mount  
**SSM-3** Stainless steel spring

**L-14-144** Coax lead 12', PL-259 & lugs for Hustler mounts  
**L-14-240** Coax lead 20', PL-259 & lugs for Hustler mounts

The Standard by Which  
All Others are Judged

## Diamond Base Station Antennas

Model	Bands	Gain, dB	Watts	Conn.	WT (lbs)	Lth (ft)	MPH	Fig	List Prices
DP-GH62	6m	6	200	UHF	7	21	78	B	\$149.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	B	\$109.95
F-23A	2 m	7.8	200	UHF	8	15	90	A	\$159.95
F-142A	1 1/4 m	5.5	200	UHF	2	6	110	C	\$124.95
F-718A*	70 cm	11.5	250	N	5	15	90	A	\$229.95
F-1230A	23 cm	13.5	100	N	5	10.5	90	B	\$159.95
U300A	70 cm/23 cm	8.6/13.2	100	N	4	8.3	110	C	\$159.95
U5000	2m/70/23cm	4.5/8.3/11.7	150	N	3	6	135	C	\$149.95
V2000A	6m/2m/70cm	2.1/6.2/8.4	150	UHF	4	8.3	110	B	\$149.95
X-50A	2 m/70 cm	4.5/7.2	200	UHF	3	5.6	135	C	\$114.95
X-200A	2 m/70 cm	6.0/8.0	200	UHF	4	8.3	112	B	\$149.95
X-300A	2 m/70 cm	6.5/9.0	200	UHF	4	10.5	90	B	\$169.95
X-510NA	2 m/70 cm	8.3/11.7	200	N	5	17.2	90	A	\$199.95
X-510MA	2 m/70 cm	8.3/11.7	200	UHF	5	17.2	90	A	\$199.95
X-500HNA	2 m/70 cm	8.3/11.7	200	N	7	17.8	90+	A	\$249.95
X-700HA	2 m/70 cm	9.3/13.0	200	UHF	12	24	90	-	\$399.95
X-2200	2 m/1 1/4 m	6.0/7.8	200	UHF	4	10.6	112	B	\$169.95
X-3200A#	2m/1 1/4m/70cm	6.0/7.8/8.0	100@	UHF	4	10	112	B	\$219.95
X-6000A	2m/70/23cm	6.5/9.0/10.0	100	N	5	10	112	B	\$199.95

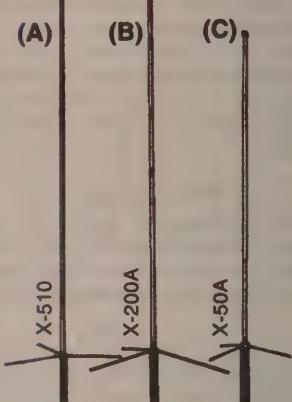
All base antennas grounded for lightning protection #2m: 146-148 MHz

Factory adjusted for American Amateur Bands - No tuning required

\* F-718A - 440-450; F718J - 430-440; F718L - 420-430

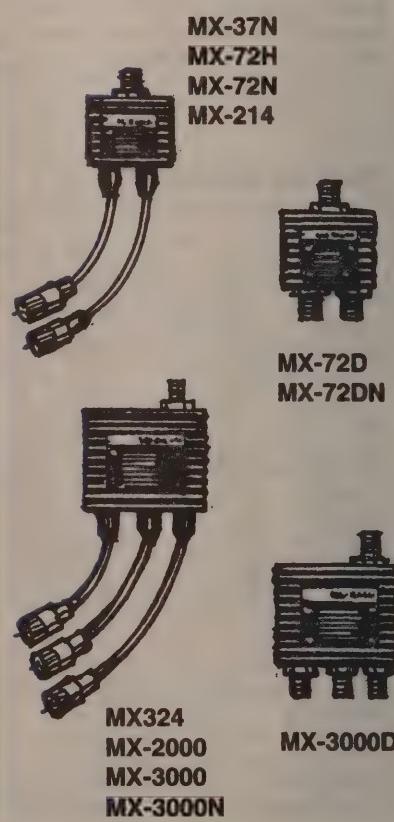
@ 100 watts on 2m, 200 watts on 1 1/4m and 70cm

- Wide-Band Performance
- Highest Gain
- Fiberglass Radome
- Factory Adjusted
- DC Grounded
- UPS Shippable
- High Wind Rating
- Stainless Hardware



## Diamond Duplexers and Triplexers

Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol. dB	MIX Conn.	Port Conn.	HRO Price
MX-37N	LPF HPF	1.6 - 470 900 - 1300	100 50		.25 .25	45 45	N-Jack (F)	N-Male/12" cable N-Male/12" cable	\$69.95
MX-72D	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/no cable PL-259/no cable	\$54.95
MX-72DN	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/no cable N-Plug/no cable	\$62.95
MX-72H	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	\$59.95
MX-72N	LPF HPF	1.6-30 140-150 440-460	400 150 100	1KW 400 250	.1 .1 .1	60 60 60	SO-239	PL-25912" cable N-Male/12" cable	\$59.95
MX-214	LPF HPF	140-150 220-225	150 100	400 250	.3 .4	45 45	SO-239	PL-259/12" cable PL-259/12" cable	\$73.95
MX-324	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	\$99.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	\$99.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	\$99.95
MX-3000D	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/No cable PL-259/No cable N-male/No cable	\$99.95
MX-3000N	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.20 .30 .40	55 55 55	N-Jack(F)	PL-259/12" cable N-Male/12" cable N-male/12" cable	\$99.95



# ANTENNAS & ACCESSORIES

## Diamond Mobile Antennas

Model	Bands	Gain/dB	Watts	Mount	Lth/in	HRO Price
NR-124	23 cm	8.4	100	N	25	\$66.95
NR-140A	1 -1/4 m	4	150	UHF	37	\$54.95
SG2000	2 m	5.2	150	UHF	62	\$89.95
CR-214S	2 m/1 -1/4 m	2.1/3.4	150	UHF	37	\$62.95
CR-224A	2 m/1 -1/4 m	5.0/6.0	200	UHF	68	\$99.95
CR-320A#	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100@	UHF	36	\$98.95
NR-72BNMO#	2 m/70 cm	2.1/2.1	100	NMO	14	\$46.95
NR-73BNMO#	2 m/70 cm	2.1/5.3	100	NMO	33	\$62.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	\$62.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	\$64.95
NR-770R*	2 m/70 cm	3.0/5.5	200	UHF	39	\$59.95
NR-790A	2 m/70 cm	4.5/7.2	120	UHF	58	\$94.95
NR-2000NA	2 m/70/23 cm	3.1/6.3/9.7	100	N	39	\$92.95
SG7000	2 m/70 cm	2.1/3.8	100	UHF	18	\$73.95
SG7200NMO	2 m/70 cm	3.2/5.7	150	NMO	38	\$88.95
SG7500	2 m/70 cm	3.5/6.0	150	UHF	41	\$86.95
SG7900	2 m/70 cm	5.0/7.6	150	UHF	62	\$109.95

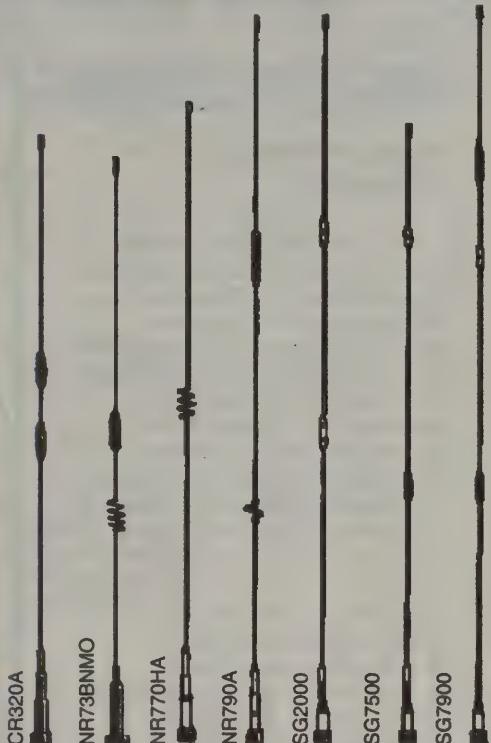
Factory adjusted for American amateur bands, no tuning required.

SG and NR antennas require no ground system.

Mobile antennas have foldover feature with spring loaded hinge (except NR770SA).

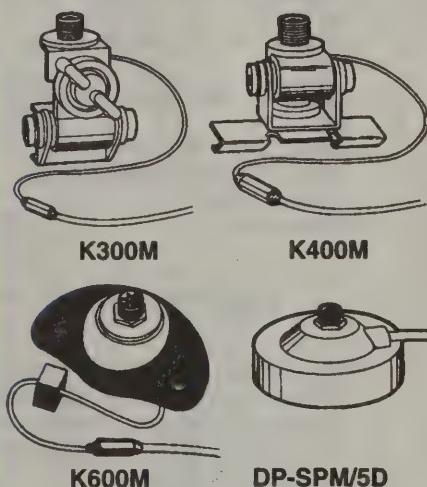
Magnetic mount not recommended for antennas over 45°.

\* Black Anodized finish @ 100 watts on 1-1/4m, 200 watts on 2m and 70cm.



## Diamond Mobile Mounts

Model	Description	HRO Price
DP-SPM/5D	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax/PL-259.	\$45.95
DPK-4NM-N	Type N on Magnet. Similar to DP- SPM/5D. N-Plug. Good to 1300 MHz.	\$59.95
K200KM	Black Trunk/Hatchback mount with fold over feature. 16.5' RG-58A/U w/PL-259.	\$35.95
K300M	Deluxe rain gutter mount. Black, Adjustable position. 10' cable.	\$83.95
K300KM	Deluxe rain gutter mount. Black, adjustable position. 16.5' RG-58A/U w/PL-259.	CALL
K400K-3/8M	Basic K400 with fittings for antennas with 3/8-24 thread base w/ cable	\$78.95
K400M	Deluxe mount with UHF type base. 16.5 feet RG-188 and low loss 5 mm cable	\$82.95
K400NMO	Deluxe mount with NMO type base. 16.5 feet RG-58/U with PL-259.	CALL
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259.	\$67.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 16.5' RG58A/U w PL259.	CALL
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 5 mm cable.	\$72.95
K600N	Same as K600M but with type-N connections	\$78.95
NMO/UHF	Adapter for imported antennas PL-259 to Motorola NMO base. Max 45" ante	\$23.95
FE-5M	Deluxe cable assembly. 16.5 feet RG-188 and low loss cable. UHF connectors	\$40.95



## Diamond Receiving / Scanner Antennas

Model	Description	HRO Price
RH-77CA	High gain 2m/70cm dual band HT antenna. Receive range to 900 MHz. BNC	\$34.95
RH-951	High gain 2m/70cm/23cm tri-band HT antenna. BNC (Wide band receive)	\$52.95
RH-205	2M HT antenna, telescopic, 5/8 fully extended, 47.5"; 1/4 retracted, 9"	\$27.95
D-130J	Wideband discone 25-1300 MHz. 200 W transmit 50-1300 MHz. No cable.	\$99.95

Order Toll-Free from Canada.

## Diamond Accessories

Model	Description	HRO Price
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, SO-239 connector	\$51.97
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	\$93.95

## Frequencies

Band	Frequency
6 m	50 - 54 MHz
2 m	144 - 148 MHz
1-1/4 m	222 - 225 MHz
70 cm	440 - 450 MHz
23 cm	1240 - 1300 MHz

## Connector Types

Type	Description
UHF	SO-239/PL-259
NMO	Motorola Type

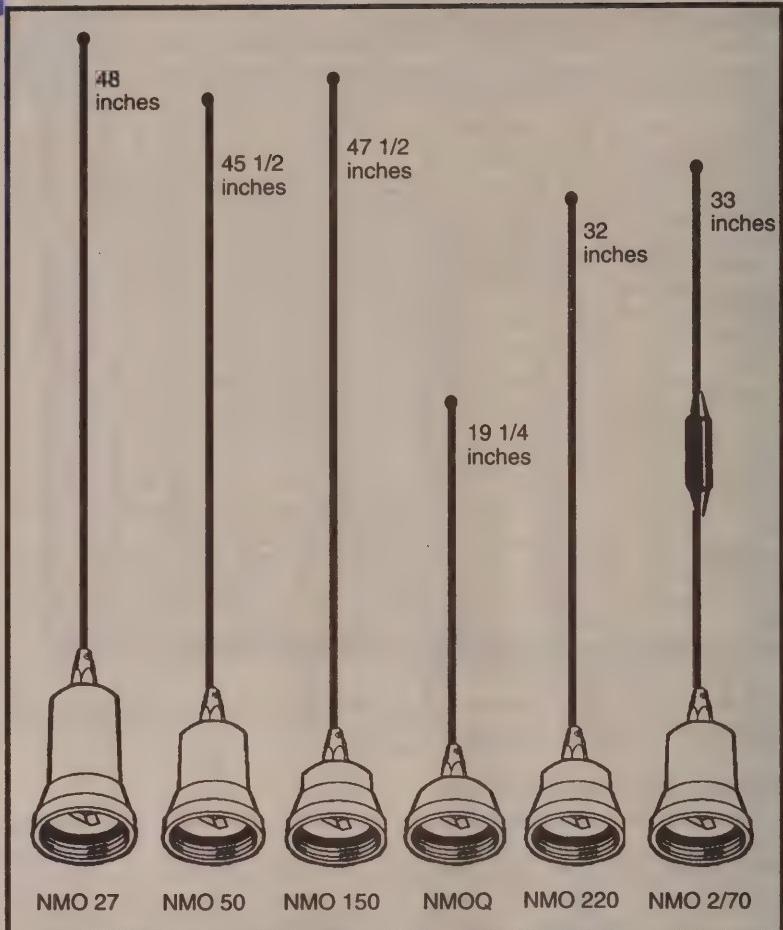
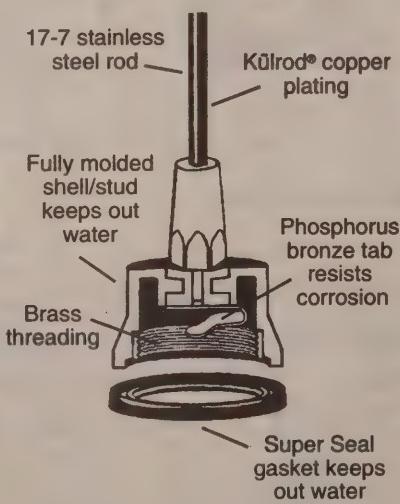
## NMO Series

### Küllerod® Mobile Antennas

All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability. The result is greater transmit range over many years of service. In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen Mount (LM) and PO Mount (PO) are excellent choices for amateur use.

- VSWR at 1.5 to 1 or less
- Greater transmit range
- Rated 200 watts output
- 3 year No-Nonsense Warranty™
- 3/4" Motorola Style mounts
- Colors: Gray base/Chrome whip or all black
- Mounts: NMO K premium quality rooftop  
NMO MM mag mount, 90# pull strength  
NMO TLM heavy duty trunk lid  
NMO TMB electropolished trunk gutter bracket
- Made in USA

### Model NMO 440



#### Model NMO 27 (10m)

Band 27-30 MHz  
Electrical 1/4 wave, loaded  
Gain Unity

#### Model NMO 220 (1.25m)

Band 220-225 MHz  
Electrical 5/8 wave  
Gain Unity

#### Model NMO 50 (6m)

Band 45-54 MHz  
Electrical 1/4 wave, loaded  
Gain Unity

#### Model NMO 440 (70cm)

Band 440-460 MHz  
Electrical 5/8 over 1/2  
Gain 4.5 dBd

#### Model NMO 150 (2m)

Band 144-174 MHz  
Electrical 5/8 wave  
Gain 3 dBd

#### Model NMO 2/70 (2m/70cm Dual band)

Band 144-148;  
442-448 MHz  
Electrical 5/8 wave VHF  
Collinear UHF  
Gain 4 dBd UHF  
2.4 dBd VHF

#### Model NMOQ

Band 144-448 MHz  
Electrical 1/4 wave  
Gain Unity

#### Model NMO 2/70 SH (2m/70cm Dual band)

NMO 2/70 SH K Dual Band, short with cable kit  
NMO 2/70 SH Unity, 2m/70cm, coil, spring

#### Model LMC 2/70 B (2m/70cm Dual band)

LMC270 B KUnity 2/27 Dual Band Black kit  
LMC 2/70 B Unity, 2m/70cm, open coil, Black

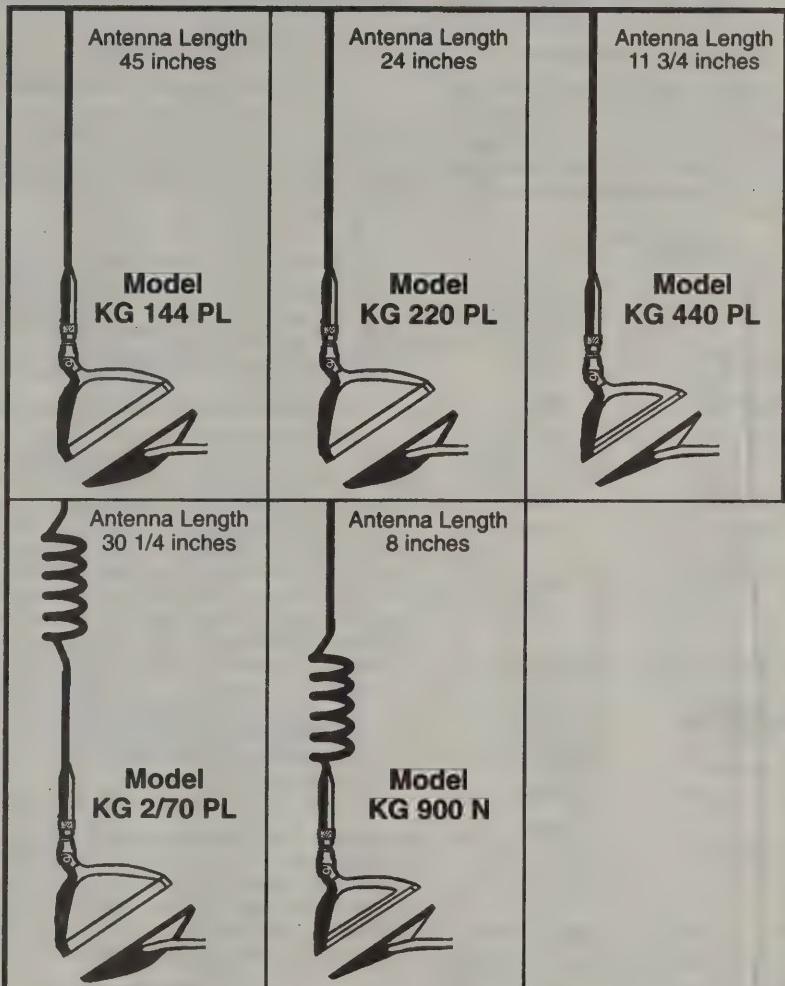
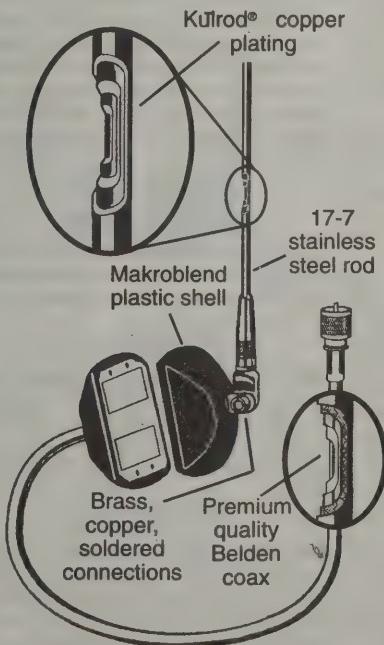


## KG Series

### Külglass® Antennas

Larsen's advanced design techniques in glass mount antennas result in superior transmit range plus tremendous mechanical durability. Today the glass mount design's performance is nearly identical to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are easy to remove and remount.

- Patented low-impedance design is more efficient electrically
- Greater transmit range
- Transformer located outside vehicle
- Copper plated whips emit more RF
- Rated 50 watts output
- VSWR at 1.5 to 1 or less
- Less than .5 dBd loss through glass vs rooftop
- New circuit board technology locks in solid state performance
- 3M's best on-glass adhesive grip™
- 3 year No-Nonsense Warranty™
- Made in USA



#### Model KG 144 PL (2m)

*NEW SOLID STATE COUPLER*  
 Band 144-160 MHz  
 Electrical 1/2 wave  
 Gain 2.4 dBd  
 Connector PL 259, (Loose)

#### Model KG 220 PL (1.25m)

Band 220-224 MHz  
 Electrical 1/2 wave  
 Gain 2.4 dBd  
 Connector PL 259, (Loose)

#### Model KG 440 PL (70cm)

Band 440-460 MHz  
 Electrical 1/2 wave  
 Gain 2.4 dBd  
 Connector PL 259, (Loose)

#### Model KG 2/70 PL (Dual)

*NEW SOLID STATE COUPLER*  
 Band 144-148; 440-450 MHz  
 Electrical 1/2 wave VHF  
 Collinear UHF  
 Gain 2.4 dBd VHF; 4.5 UHF  
 Connector PL 259, (Loose)

#### Model KG 900 N (35cm)

Band 865-965 MHz  
 Electrical 5/8 over 1/2 wave  
 Gain 2.4 dBd  
 Connector N, (Loose)

• Call Toll-Free to Order  
 a Larsen Antenna

# VHF / UHF ANTENNAS FOR...



## Mobile Antennas

Larsen has a number of mobile antenna configurations. These are assembled based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select the base with the same mounting style as the antenna. To assist in this selection, typical bases and styles are shown below.

### Thread Type



PO (SO-239)



NLA



LM \*



NMO \*

These are examples of each of the thread types. Select one of these and then select the base.

\* These are the most popular thread types.

### Mount Configurations



MM \* -- Magnetic



K \* -- Permanent



MMR -- Magnetic



TLM -- Trunk

Each of these mounts comes in one of the thread types. For example, a magnetic mount with an LM type would be called an LMM.

\* These are the most popular base configurations.

### MOUNT BASES

Thread Type	Magnetic Mount	Trunk lip Mount	Permanent Mount
LM	LM-MM	LM-TLM	LM-K
NMO	NMO-MM	NMO-TLM	NMO-K
NLA	NLA-MM	NLA-TLM	NLA-K
PO	PO-MM	PO-TLM	PO-K

### Antenna Selection

Once the base and thread type are selected, the final step is to choose the antenna. Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip. This is based on two factors: frequency and gain. For most amateur work, the frequency choices and gain whips are:

Frequency	Coil	Whip
2m	150	W490
220MHz	220	W320
440MHz	UHF	W144B

For quarter wave antennas from 2m ~ 450 MHz, use Q style antenna. Select the thread type and add Q (e.g., NMQQ for a 1/4 wave antenna with an NMO mount).

## On-Glass Antennas



### Single Band 1/2-Wave

All single band antennas are precut, single 1/2 wave design providing 2.4 dB gain and a maximum power 100 watt rating. The antennas are supplied with a PL-259 connector on 14 feet of premium RG58/Ucable. VSWR is 1.5:1 or less.

Model	Description	HRO Price
KG-144-PL	2 meter antenna	\$58.85
KG-220-PL	220 MHz antenna	\$58.85
KG-440-PL	440 MHz antenna	\$49.15

### Dual-Band On-Glass

The KG 2/70 enables simultaneous use of the 2 meter and 70 centimeter bands without sacrificing gain and without drilling a hole in your car. The KG 2/70 is a half-wave on VHF and a collinear on UHF. It achieves 2.5 dBd gain on 2 meters and 4.5 dBd on 70 centimeters. Its maximum power capability is 50 watts. It comes with 14 feet of RG-58/U coax and a PL-259 connector. The antenna installs easily on any flat surface. Overall height is 36 inches including the mount. Remove the whip without tools for car washes or low garages. HRO Price \$84.95

**MOBILE MARK, INC.**  
COMMUNICATIONS ANTENNAS

### On Window Dual Band

Mobile Mark's "On Window" dual band antenna can operate anywhere within the 140-174 and 440-470 MHz band widths. There is no tuning interaction between UHF and VHF. Either band can be tuned up without affecting the tuning of the other band. It provides unity gain. HRO Price \$89.95

#### Specifications

Frequency	140-174 and 440-470 MHz
Maximum Power	150 Watts
Bandwidth	10 MHz VHF/ 20 MHz UHF
Radiator Length	24 inches (61 cm)
Cable	RG58U, 15.5 feet



antenna specialists

### Amateur Band On-Glass

The co-inductive coupling establishes a highly tuned circuit that transmits and receives radio signals through glass. No holes to be drilled, no ground plane and provides a uniform omnidirectional pattern. APR-151.3G uses a 33" whip with 3dB gain for 2m. AP-220.3G for 220 MHz has a 17" whip and with 3dB gain. For 440 MHz AP-450.3G provides 3dB gain with an 8" whip and AP-450.5G gives 5dB gain with a 30" whip.

### AP-143

This unique on-glass styling looks like a cellular antenna with the coil in the antenna. Broad banded. No tuning necessary. The length of the whip is only 26 inches. Black coating on the antenna is very attractive. No ground plane required.

## Rubber Duckies



Larsen offers several models of "rubber duck" antennas, each with its own special performance characteristics.

### Helical

The Helical antennas, approximately 6" in length, are the most commonly used.

### HQ

The HQ is a helical quarter wave antenna and offers a higher gain than the normal helical. This antenna is offered only for VHF applications.

### HW Half Wave

Available for both VHF and UHF, the 1/2-wave design allows operation independent of the ground plane. It has a rigid impedance transformer at the base and a telescoping, black chrome plated whip with a BNC connector.

**MAXRAD**

These quality VHF / UHF antennas are available. Please call for models, specifications, & quotes.

## 2m/70 cm Duplexers



Comet Antenna produces the widest variety of antenna duplexers/triplexers available. Features include gold-plated connectors, high isolation and the highest power handling abilities. See pages 110 and 111 in this catalog for details.



Diamond has a wide collection of duplexers and triplexers for coupling antennas to the transceivers. See pages 104 and 105.



Model AD-2/70 provides a bi-directional passive coupler needed when using a single dual-band antenna. Isolation between VHF and UHF is more than 50 dB. Handles 200 watts. HRO Price \$63.70



The AD-3 duplexer will handle up to 50 watts and comes with short cables to attach to the radio. The VHF cable has an SO-239 and the UHF has a type N connector. VHF to UHF isolation is 50 dB. HRO Price \$52.95

# MOBILES, HANDHELDS, BASE STATIONS



**Antennas for Handhelds and Mobiles**

Model	Description	HRO Price
<b>HT Antennas</b>		
AL-800	2m/70cm 3.2/5.6 dB gain. 50 watt capability. 2 in 1 model. w/gold BNC. Black chrome plated.	\$36.95
RD-8H	2m/70cm 10 watt capability. Flexible whip.	\$19.95
S-1	2m/70cm 0.3/2 dB. 50 watt capability.	\$24.95
<b>Mobile Antennas</b>		
AT-2	2m/70cm 3.8/5.6 dB. 200 watts. 2'3" tall. UHF connector.	\$43.95
AT-3	2m/70cm 2.15/3dB dB. 150 watts. 17" tall. Black Chrome Finish. UHF connector.	\$29.95
AT-4	2m/70cm 3/5.5 dB gain. 200 watt capability. UHF or NMO mount (specify with order).	\$49.95
<b>Mounts</b>		
CM-1	Side mirror clip mount with BNC connector. 8' coax cable.	\$18.95
CM-2	Side mirror clip mount with adjustable BNC connector. 8' coax cable.	\$17.95
WA-1	Window/sun roof clip mount with BNC connector. 8' coax cable.	\$19.95
MC-1	Hi-Flux magnetic mount with RG-58C/U super high quality cable.	\$21.95
TA-1	Trunk mount with RG-58C/U super high quality cable.	\$24.95
<b>Base Antenna</b>		
A-1000	Base Antenna. 2./70cm. 8.5 dB (2m) 11.8db(70cm) Gain. 310 watts. 17.5" Tall	\$199.95

## 2m / 70 cm Dual-Band Antennas

When the mobile radios used with the dual-band antennas have an output for 2 meters and a separate output for 440 MHz, it is necessary to use a duplexer when using a single antenna. The Kenwood MA-700 comes with a duplexer. Optional duplexers are available from Larsen, Yaesu, Diamond and Comet.

In addition to the antennas in the chart below, there are more dual-band antennas on the following pages:



See Page 104



See Page 110



See Page 112

## Dual Mobile Antennas

Brand	Model	Type	Frequency MHz	Gain	Weight oz.	HRO Price
Icom	AH-32	2m	144-148	2.7 dB	8.8	\$54.95
		70cm 5/8 collinear	440-450	5.5 dB		
Kenwood	MA-700	2m 1/2 whip	144-148	3.0 dB	7	\$94.95
		70cm 5/8 stacked	440-450	5.5 dB		
Larsen	NMO 2/70	2m	144-148	2.6 dB	3.9	\$46.65
		70cm 5/8 collinear	440-450	5.5 dB		
Austin	500C	2 m	144 -148	Unity	6	\$32.95
		70 cm	440 - 450			
	Metropolitan	2 m	144 -148			\$39.95
		220 MHz	220 - 225	Unity	6	
		70 cm	440 - 450			

## AUSTIN ANTENNA

**Ferret** multiband scanner antenna is an array of tuned elements providing state-of-the-art performance from 30 to 1300 MHz. Use of dielectrically tuned chokes, multi-tuned parallel resonant circuits and asymmetrical elements yields resonances at 40, 100, 122, 146, 310, 465, 865 and 1280 MHz. Housed in a neat white lightweight fiberglass radome, an aluminum mounting tube is provided for easy installation to a mast or side brackets. Termination is an N connector. For extended reception, a 10 dB broadband preamp module with matching variable voltage power supply that mounts at the antenna is available. **HRO Antenna Price \$249.95**

**Suburban** 3 and 4 band base antennas have center fed, half wave radiators decoupled by a resonant cavity and housed in a slim, attractive white fiberglass radome for protection against harsh environments. No ground plane or field adjustments needed.

**HRO Prices:**

144, 222, 440 MHz \$69.95  
144, 222, 440, 1280 MHz \$109.95  
50, 144, 222, 440 MHz \$169.95

**Condor** is a true multiband flexible with tuned 1/4 wave elements for high band VHF, UHF, and 800/1000 MHz. The BNC connector is imbedded in the high density urethane housing to withstand the roughest handling. Replace that stock rubber ducky and pull in the weak signals. **HRO Price \$29.95**

**DFQ** is a monoband, center fed, stacked 5/8 wave antenna housed in a fiberglass radome for maximum survivability. A perfect portable or base antenna. Available for all amateur frequencies 2 meters to 1.3 GHz and beyond. **HRO Prices: 144 MHz \$64.95; 222 MHz \$59.95; 440 MHz \$59.95**

**Multiplexers** for simultaneous unswitched operation with separate radio systems. Superbly made band pass filter ports have less than 0.5 dB insertion loss and port-to-port isolation that exceeds 50 dB. Match all Austin multiband antennas. Fabricated in rugged, irradiated aluminum housings, with N-type connectors for constant impedance and minimum loss. **HRO Prices: Triplexer \$130.00; Quad-plexer \$170.95; Pentaplexer \$199.95**

**500C** dual band mobile antenna covering 2 meters and 70 cm, uses patented resonant cavity techniques to achieve high performance and simultaneous match for multiband operation. The UHF element is a ground independent 1/2 wave radiator. In VHF operation, an offset-fed 1/4 wave element uses the vehicle as a ground plane to lower the usually high radiation angle of a 1/4 wave antenna. Only 19" tall, the antenna will not bend over at highway speeds. Performance exceeds that of a typical 5/8 wave design at highway speeds. **HRO Price \$32.95**

**Metropolitan** mobile multiband antennas employ a unique Austin patented design, using state-of-the-art resonant cavity techniques to achieve high performance and simultaneous match for VHF/UHF multiband operation. All elements are end fed 1/4 wave elements using the vehicle as a ground plane. Decoupling of each element is by means of the resonant cavity, which also produces a 50 ohm match. This isolation produces a superior radiation pattern that provides great performance on all bands. The tribander covers 144, 222, and 440 MHz. The quadbander adds 1280 MHz. **HRO Prices: Tribander \$39.95; Quadbander \$49.95**

**Pentenna** is a five band mobile which adds either 10 or 6 meters (your option). **HRO Price \$99.95**

**Spectra** multiband antenna is a patented 4 band tuned mobile or base design. It covers low and high VHF with 1/4 wave elements, UHF and 800/1000 MHz with 1/2 wave elements. It is 33 inches long and has a Motorola type connector for easy mobile mounting. **HRO Antenna Price \$84.95**

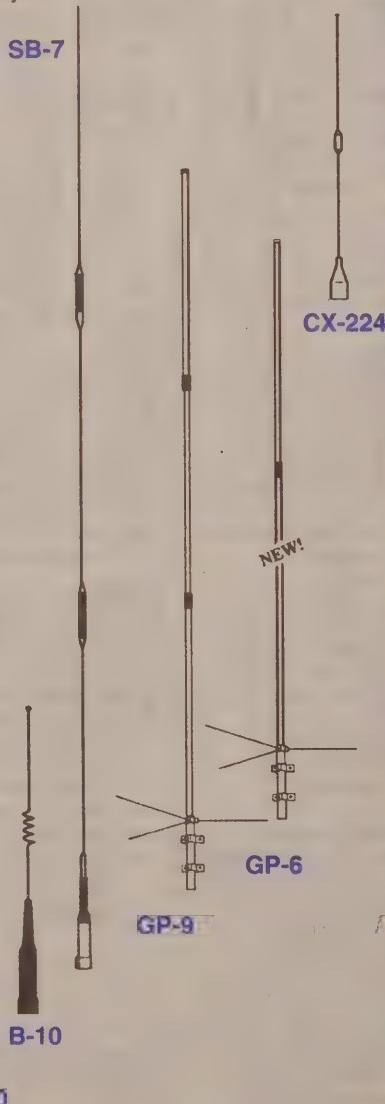
A pole mount is available for base station usage. At 48 inches long, it increases the VHF elements to 1/2 wave for enhanced performance. **HRO Price (Antenna and Pole) \$139.95**



## Dual / Triband VHF / UHF Antennas

Comet developed the Super Linear Converter (SLC) System to increase the actual gain of Dual and Triband antennas.

- A complete pre-formed phasing coil and phosphorus copper element eliminates additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon, for maximum performance.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.



## Comet Dualband Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MPH	Sugg. List
<b>Dual Band Base Station Repeater Antennas</b>								
GPX-2010	2m/70cm	9.5/13.2	200	SO-239	7'14"	23'4"	65 w/o guys 90 w/guys	\$395.95
GP-9/GP-9N	2m/70cm	8.5/11.9	200	SO/N	5'11"	17'8"	90	\$224.95
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	\$174.95
GP-3	2m/70cm	4.5/7.2	200	SO-239	2'12"	5'11"	112	\$121.95
CA-350DB	10m/6m	2.15/6.5	100 FM	SO-239	7"	22'7"	65	\$319.95
CA-1243Z	70cm/23cm	9.4/12.8	150/50	N-Female	3'8"	7'5"	90	\$161.95
CA-1243E	70cm/23cm	6.0/8.4	150/50	N-Female	1'13"	3'4"	112	\$94.95
<b>Dual Band Mobile Antennas - B Series - Black Anodized</b>								
B-10	2m/70cm	-2.15	50	PL-259	-	12"	-	\$38.95
B10NMO								\$38.95
B-20	2m/70cm	2.15/5.0	50	PL-259	-	30"	-	\$56.95
B20NMO								\$56.95
<b>NEW Z Series With Theft-Resistant Lock</b>								
Z750	2m/70cm	2.15/5.5	200	PL-259	-	3'3"	-	\$66.95
Z780	2m/70cm	4.5/7.2	150	PL-259	-	5'2"	-	\$89.95
SB-7/SB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	-	4'7"	-	\$82.95
SB-5/SB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	-	3'2"	-	\$58.95
SB-2/SB-2NMO	2m/70cm	2.15/3.8	100	PL/NMO	-	20"	-	\$35.95
SB-214W	2m/220MHz	1.7/3.4	100	PL-259	-	2'11"	-	\$62.95
CHL-350	10m/6m	-2.15	200	PL-259	-	7'0"	-	\$71.95

## Comet Triband Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX WIND SPEED MPH	Sugg. List
<b>TrBand Base Station Repeater Antennas</b>								
GP-15	6m/2m/70cm	3/6.2/8.6	200	SO-239	2'15"	7'11"	90	\$169.95
GP-93	2m/70cm/23cm	4.5/7.2/10	200	N-Female	2'8"	57"	112	\$149.95
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	\$229.95
CX-333	2m/220/70cm	6.5/7.8/9.0	120	SO-239	3'10"	10'2"	112	\$214.95
<b>TriBand Mobile Antennas</b>								
FJ-15S	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	-	4'10"	-	\$104.95
SB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	-	3'3"	-	\$84.95
CX-224	2m/220/70cm	2.15/3.2/5.5	150	PL-259	-	3'1"	-	\$82.95
CX-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	-	3'1"	-	\$82.95
CA-HV	40/(20)/15/10	1/4 Wave	120 SSB	PL-259	MAX 1'3"	MAX 6'3"	-	\$149.95
L-14	Opt 20M coil for CA-HV						-	\$36.95
HA-4S	40/(20)/15/10/6/2m	HF-/2.25/3.4	150 SSB	PL-259 /NMO		4'4"	-	\$199.95
L-14HS	Opt 20M coil for HA-4S						-	\$39.95

## Comet Single Band and HT Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	LEN FT' In"	HRO Price
<b>Single Band Antennas</b>						
SB-25/SB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	\$49.95
SB-44	70cm	5.5	130	PL-259	37"	\$44.95
<b>HT Antennas</b>						
CH-32 MINI Ant	2m/70cm	-	10	BNC	1.75"	\$33.95
CH-72S	2m/70cm	-3.2	50	BNC	15"	\$32.95
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	\$49.95

# ANTENNAS & ACCESSORIES

## Comet High-Power Duplexers and Triplexers

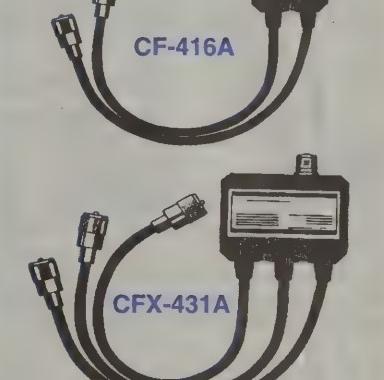
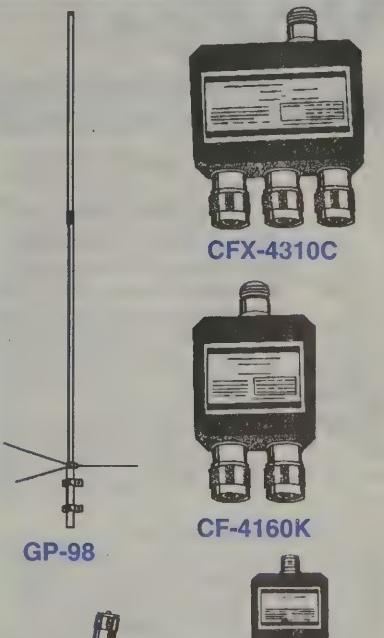
Zinc-alloy, die-cast, twin cavity, low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

MODEL	PORT	Freq MHz	C W Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A (2m/70cm)	LPF	1.3-150MHz	450	800	0.15	60	SO-239	PL-259 w/leads	\$58.95
	HPF	400-540MHz	300	500	0.25	60		PL-259 w/leads	\$58.95
CF-416C (2m/70cm)	LPF	1.3-150MHz	450	800	0.15	60	N-Female	PL-259 w/leads	\$58.95
	HPF	400-540MHz	300	500	0.25	60		N-Male w/leads	\$58.95
CF-4160I (2m/70cm)	LPF	1.3-150MHz	450	800	0.1	60	SO-239	PL-259 w/o leads	\$52.95
	HPF	400-540MHz	300	500	0.2	60		N-Male w/o leads	\$52.95
CF-4160K (2m/70cm)	LPF	1.3-150MHz	450	800	0.1	60	SO-239	PL-259 w/o leads	\$52.95
	HPF	400-540MHz	300	500	0.2	60		PL-259 w/o leads	\$52.95
CF-413B (70cm/1.2GHz)	LPF	1.3-150MHz	450	800	0.25	55	N-Female	PL-259 w/leads	\$74.95
	HPF	350-500MHz	300	500	0.25	55		N-Male w/leads	\$74.95
CF-530 (6M/125-470)	LPF	1.3-90MHz	350	600	0.2	45	SO-239	PL-259 w/leads	\$74.95
	HPF	125-470MHz	350	600	0.2	45		PL-259 w/leads	\$74.95
CF-360A (10m/6m)	LPF	1.3-30MHz	350	600	0.2	45	SO-239	PL-259 w/leads	\$74.95
	HPF	50-240MHz	350	600	0.2	45		PL-259 w/leads	\$74.95
CF-142 (2m/220MHz)	LPF	1.3-1150MHz	300	600	0.2	40	SO-239	PL-259 w/leads	\$74.95
	HPF	220-480MHz	200	400	0.3	50		PL-259 w/leads	\$74.95
CFX-431A (2m/70cm/1.2)	LPF	1.6-60MHz	600	1KW	0.2	50	N-Female	PL-259 w/leads	\$89.95
	-	100-150MHz	450	800	0.2	50		N-Male w/leads	\$89.95
	BPF	350-500MHz	300	500	0.3	50		N-Male w/leads	\$89.95
CFX-4310B (2m/70cm/1.2)	LPF	1.6-60MHz	600	1KW	0.15	50	N-Female	PL-259 w/leads	\$84.95
	-	100-150MHz	450	800	0.25	50		N-Male w/leads	\$84.95
	BPF	350-500MHz	300	500	0.25	50		N-Male w/leads	\$84.95
CFX-4310C (2m/70cm/1.2)	LPF	1.6-60MHz	600	1KW	0.15	50	N-Female	PL-259 w/leads	\$84.95
	-	100-150MHz	450	800	0.25	50		N-Male w/leads	\$84.95
	BPF	350-500MHz	300	500	0.25	50		N-Male w/leads	\$84.95
CFX-514 (6m/2m/70cm)	LPF	1.3-90MHz	450	800	0.2	55	SO-239	PL-259 w/leads	\$84.95
	BPF	130-200MHz	450	800	0.25	55		PL-259 w/leads	\$84.95
	HPF	380-500MHz	300	500	0.3	55		PL-259 w/leads	\$84.95
CFX-514J (6m/2m/70cm)	LPF	1.3-90MHz	450	800	0.15	55	SO-239	SO-239 w/o leads	\$79.95
	BPF	130-200MHz	450	800	0.2	55		SO-239 w/o leads	\$79.95
	HPF	380-500MHz	300	500	0.25	55		SO-239 w/o leads	\$79.95
CFX-324A (2m/220/70cm)	LPF	1.3-150MHz	350	600	0.2	40	SO-239	PL-259 w/leads	\$99.95
	BPF	200-320MHz	350	600	0.25	40		PL-259 w/leads	\$99.95
	HPF	390-500MHz	350	600	0.3	40		PL-259 w/leads	\$99.95
CFX-324B (2m/220/70cm)	LPF	1.3-150MHz	350	600	0.2	40	SO-239	PL-259 w/o leads	\$95.95
	BPF	200-320MHz	350	600	0.25	40		PL-259 w/o leads	\$95.95
	HPF	390-500MHz	350	600	0.3	40		PL-259 w/o leads	\$95.95

## Comet Mobile Mounting Systems

Comet has a wide variety of mobile mounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

MODEL	DESCRIPTION			HRO Price
3D4M	Standard coax assy. 13ft low loss (3.5mm) coax w/UHF Connectors			\$24.95
3D4N	-Ditto- But with N-Type Connectors			\$28.95
CK-3M5	13ft VERY low loss (5mm) cable + RG-188 to avoid water leak/cable damage. UHF Conn.			\$37.95
CK-5N	-Ditto- But with N-Type Connectors			\$43.95
SD4N	13ft VERY low loss (5mm) cable assy. For 1.2GHz. N-Type Connectors			\$34.95
<b>The following Mounts are w/o Coax. Choose from the Cable Assembly Above.</b>				
RS-80	Presige Heavy-Duty Gutter Mount. Black w/Dail lock.			\$32.95
RS-81	Presige Heavy-Duty Trunk Lip Mount. Black w/Dail lock.			\$32.95
RS-21	Multi-Purpose Mount, Trunk-Lip/Hatch-Back, Black, Adj to any position			\$29.95
RS-9	Trunk-Lip Mount, Black. For small antennas. (B-10, B-20, CHL-23J, etc)			\$14.95
MS-3FVMM	Mag Mount, 13ft low-loss (3.5mm) cable. 12 pole magnet. UHF Connectors			\$43.95
MS-5LXMM	Mag Mount, 13ft low-loss (5mm) cable + Rg-188 to avoid water leak/cable damage			\$57.95
MS-5LXNN	-Ditto- But with N-Type Connectors			\$61.95
GR-5M	Deluxe trunk-lip mount w/CK-5N Cable, N-type connectors			\$65.95
GR-5N	Deluxe trunk-lip mount w/CK-5N Cable, N-Type connectors			\$65.95



3D4M(N) Detachable Connector

RG-188 provides easy entry into the vehicle from an exterior mount.  
13 feet very low loss coax.  
10 inches RG-188 CK-3M5/CK-5N Detachable Connector

# Valor

## Antenna Mounts



### VHF 1/4 Wave Magnetic Mount Kits

#### Model VAA-002

1/4-wave magnetic mount antenna for 2 meters. Can be cut for 220 or 450 MHz. 17-7 stainless steel whip; 100 watts; complete with 12-foot Valor-Flex™ cable and PL-259 connector. HRO Price \$23.95

#### Model VAA002BNC

Same antenna as VAA002, except with BNC connector. HRO Price \$27.95

#### Model 105AD

Mount Assembly: Heavy duty 3/8 SO-239 Connector, nickel plated. No chance of rust or corrosion. The brass hex is chrome plated. For plug-to-plug connections. HRO Price \$5.99



#### Window Mount Kit

#### Model WMSLBNC

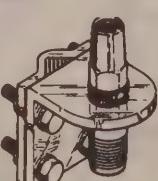
Slim Line window mount kit with BNC connectors and 7' RG188 cable. Easily mounted to any vehicle window. Features slimline, black finish window mount BNC connectors and high tech design. Ideal for handheld radios for Amateur, CB, scanner and commercial users who need extra performance. HRO Price \$34.95



#### Stainless Mount

#### Model SSI00AD

Stainless Steel 3-Way Mount: Heavy-duty 3/8 SO-239 connector. Mounts horizontally, vertically, or flush. Heavy gauge bright stainless steel bracket and back plate. All stainless steel hardware and chromeplated brass hex. Fits all standard 3/8-24 antennas up to 48". For plug to plug hookups. HRO Price \$14.95



#### Hat Clip

#### Model BNC-HC

BNC Hat Clip with 4' of Cable and BNC Connector. HRO Price \$14.95



#### Trunk Lip Mounting Kit

#### Model PAT2

This is a low profile, no-hole trunk mount. This mount features the Motorola Style 1-1/8"-18 thread for amateurs who demand the very best and professional quality. HRO Price \$27.95



# pro-am

## HF Mobile Antennas

### Model AB5

The Pro-Am HF mobile series are heavy-duty, slim-line construction, designed for the HF amateur bands 75M, 40M, 20M, 15M, and 10M. Heavy-gauge copper wire wound on 3/8" fiberglass, with nickel-chrome brass fittings and 17-7 taper ground stainless steel whips assure dependable mobile operation. The 4' S.S. whip is field tunable for lowest VSWR and double locked with S.S. set screws. The antenna features 3/8-24 ferrule to fit standard mobile mounts. Power rated at 250 watts P.E.P. for top mobile performance. Approx. 8' length. HRO Price \$109.95

# ANTENNAS

## Baluns

# hy-gain

by Telex

### BN-4000

#### Series 243S

These current-type baluns come in three models. BN-4000B for beams; BN-4000D for dipoles; BN-4000N with a type-N connector. Frequency 1 to 54 MHz for beams. Call for HRO Discount Prices.

### BN-86

#### 242S

Broadband 50 ohm ferrite, voltage-type balun. Usable from 3-30 MHz. Comes with clamp to bolt to boom and SO-239 connector. HRO Price \$34.95

# bencher



### ZA-1A Balun

The ideal 1:1 Balun for dipoles, inverted vees, quads and yagis from 80' - 10 meters. Lets your antenna radiate, not your feedline. Accepts 1/4" support rope for inverted vees, etc.

### Glasmaster™

## Glass Mount Antenna

The model GM270 is a dual-band, on-glass mounted antenna for 2 meters and 440 MHz. It comes with 14' RG58 with a PL-259 connector. HRO Price \$59.95

### Dual-Band Base Station Antenna

#### Model DB240 for 2 Meters / UHF

Extra heavy-duty 144/450 MHz base station antenna is designed for the amateur user who appreciates innovative design. The DB240's compact size gives big performance.

#### Specifications

	2 Meter	UHF
MHz frequency:	144-148	435-450
SWR 2:1 band width	>10 MHz	>20 MHz
Gain	3.11 dbi	7.18 dbi
Power FM	250 Watts	250 Watts
Mast diameter	1.25" maximum	
Overall length	40"	
Radial length	20.5"	
Radials	Aluminum	
Loading coil housing	Weather Sealed Black PVC	
Hardware	Stainless Steel "N" Connector	
HRO Price	\$89.95	

### PA Base Repeater Antennas

The new PA Repeater Antennas feature a wide-band range; VSWR 1.5:1; factory adjusted, no tuning required; weatherproof; stainless steel radials and hardware; UPS shippable; 200 watt power rating; UHF connectors; rugged white fiberglass; wind speed ratings in excess of 90 mph.

Part #	Gain (dB)				Element Phasing	HRO Price
	2m	70c m	Lgth (in.)	Wind Rating (mph)		
PA555	8.3	12	204.7	90	2m:3-5/8, 70cm:8-5/8	\$179.95
PA255	6	8	98.4	112	2m:2-5/8, 70cm:4-5/8	\$139.95
PA55	4.5	7.2	67	135	2m:5/8, 70cm:3-5/8	\$79.95

## Insulators

# hy-gain

by Telex

### CI Center Insulator

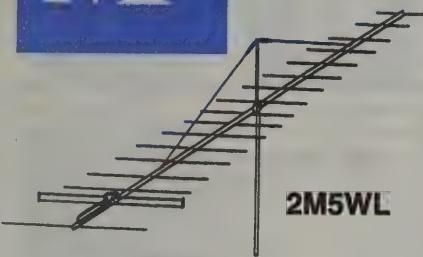
For dipole antennas. Accepts 1/4" or 3/8" coax. Model 157S HRO Price \$26.95

### EI End Insulator

For multiband dipoles. Pair of 7" heavily serrated end insulators. Model 156 HRO Price \$26.95

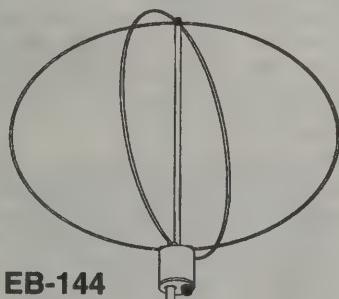
# MORE ANTENNAS

**M<sup>2</sup>**



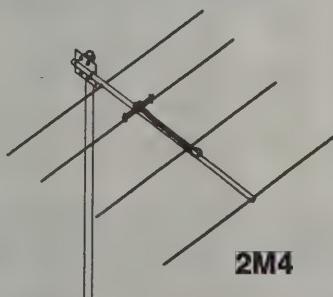
**2M5WL**

The 2M5WL is designed with the serious DXer in mind. It provides maximum gain for minimum weight and yet windload is strong enough to survive 100 mph winds. The driven element is also unique as its center is machined from a block of aluminum and fitted with 'O' ringed connectors and access cap. After factory assembly, the housing is filled with a space age silicon material. The antenna is widely used in EME and large tropo scatter arrays.



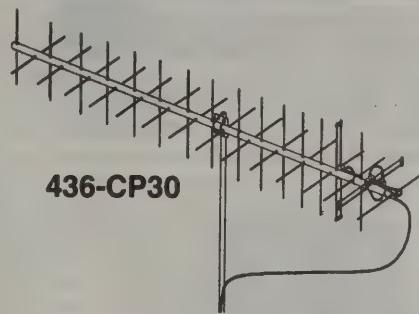
**EB-144**

The EB-144 Eggbeater offers exciting new performance characteristics for both fixed and mobile operations. The EB-144 produces smooth omnidirectional horizontal polarity at the horizon. Above the horizon, the pattern transforms to right hand circular off the top making it a natural for OSCAR use. No rotation or steering is required.



**2M4**

The 2M4 features a clean mechanical design, full-band coverage and computer optimized performance. These make it an exceptional antenna. A totally sealed and grounded driven element design with a unique internal balun provides the heart that will beat for years to come. It is perfect for base and portable use, with FM, Packet or SSB. Every station needs one.



**436-CP30**

The 436-CP30 is a practical size yet high-performance circular polarized antenna with a remarkably clean pattern. The pattern is important in order to match the antennas noise temperature with today's low noise preamps. This antenna is ideal for satellite work but is also excellent for terrestrial uses like ATV, repeater operation and long haul tropo DX.

## 2M SQLOOP

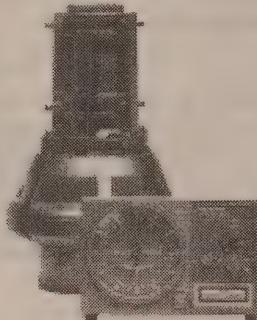
Shown with  
Optional  
Mast and  
Magnet Mount



The SQLOOP is an omnidirectional Horizontally polarized antenna designed for mobile and base use. The SQLOOP for 2 meters is a flat 8" square, reduced size loop, cut out of one piece of aluminum to minimize loss. The basic 2 ohm impedance of the loop is efficiently balanced fed with an inductive, magnetically shielded coupling loop.

Model	Frequency Range MHz	Gain	Front to Back	Wind Area sq ft	Boom Length ft	Turning Radius ft	Sugg. List
6 Meters							
6M SQLOOP	50-54	4.8	Omni	0.13	NA	NA	\$129.95
6M5	50-50.5	9.2	12	2	15.75	9.5	\$195.95
6M7	49.5-50.5	10.5	23	3	26.75	14.5	\$289.95
6M2WL	50.1	12.1	>25	5	39.5	20.4	\$439.95
6M2.5WL	50.1	12.7	>22	5.9	50.33	26	\$549.95
2 Meters							
2M SQLOOP	144-144.5	4.8	Omni	0.074	NA	NA	\$59.95
EB-144	144-148	1	Omni	0.17	NA	NA	\$119.95
2M4	144-148	7.5	20	0.5	4	4	\$89.95
2M7	144-148	10.3	20	0.74	8.8	4.5	\$119.95
2M12	144-148	13	25	1.5	19.5	9.5	\$149.95
2M5WL	144-148	14.8	22	2.7	33	18.78	\$189.95
2MCP14	144-148	10.3	20	1.1	10.5	6	\$169.95
2MCCP22	144-148	12.5	25	2.5	18.6	10	\$229.00
2M8WL	144-146	16.67	24	5.8	52.8	27	\$339.95
2 m - 70 cm Dual-Band							
2M5-440XP	144-148/430-450	9 & 12	15 & 25	1.1	5	2.5	\$149.95
220 MHz							
222-7EZ	220-226	9.8	22	0.5	5.66	5.8	\$99.95
222-7WL	220-226	16.4	25	2.7	32.5	18	\$189.95
222-10EZ	220-226	12	23	0.7	9.75	5.5	\$99.95
70 cm							
EB-432	420-450	1	Omni	0.083	NA	NA	\$119.95
420-50-5	420-450	7.8	20	0.33	2.166	2.1	\$89.95
420-50-11	420-450	11.3	23	0.5	5	2.5	\$89.95
440-18	420-455	23	23	0.875	11.33	6	\$109.95
436CP30	430-440	14.5	24	1	9.75	5	\$229.95
432-9WL	420-440	17.3	24	1.6	21	11	\$149.95
432-13WL	430-434	18.6	24	2.5	21	10.5	\$229.95
900 MHz and Above							
902-14WL	895-910	19	25	1.2	15.3	8	\$169.95
23CM22EZ	1250-1300	16	0.3	0.3	5.33	3	\$89.95
23CM35EZ	1250-1300	18.4	25	0.06	10	5.5	\$129.95
13CM40EZ	2300-2402	18.2	21	0.26	5.5	3	\$109.95

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and low, discount prices on Yaesu products.



### G-2800SDX

The G-2800SDX is a high-technology rotator designed to turn the largest tower-mounted antenna arrays.

### G-800S / G-800SDX

The G-800 rotor series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800SDX is the same as the G-800S with the addition of presets.

### G-1000SDX

The G-1000SDX is designed to handle bigger arrays, up to 22 square feet. A great value.

### Rotator

### Computer Controllers

The GS-23 Rotator Computer Controller is for the G-800SDX, G-1000SDX and G-2800SDX. Suggested List Price GS-23 \$345.95

The GS-232 model is for the G-5400.

Suggested List Price GS-232 \$547.95

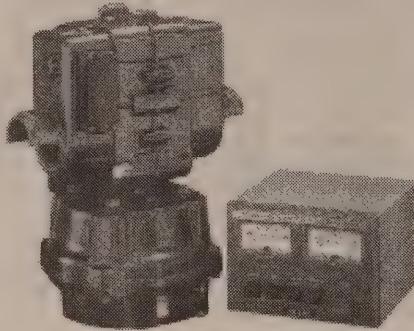
### Rotator Specifications

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	Sugg. List
Hy-Gain	HDR-300A	110/220 V	24 VAC	60 sec	7500 in lbs	5000 in lbs	25 sq ft	500 lbs	3 in	7-wire	55 (25)	\$1,380.95
	T2X	110 V *	24 VAC	60 sec	9000 in lbs	1000 in lbs	20 sq ft	800 lbs	2.06 in	8-wire	28 (12.7)	\$613.95
	HAM-IV	110 V *	24 VAC	60 sec	5000 in lbs	800 in lbs	15 sq ft	500 lbs	2.06 in	8-wire	24 (11)	\$515.95
	CD-45II	110 V	24 VAC	60 sec	800 in lbs	600 in lbs	8.5 sq ft	200 lbs	2.06 in	8-wire	22 (10)	\$373.95
	AR-40	110 V	24 VAC	60 sec	450 in lbs	350 in lbs	3 sq ft	100 lbs	2.06 in	5-wire	14 (6.4)	\$260.95
Yaesu	OR-2800	110/220 VAC	28 VAC	70 sec	17,000 in lbs	2500 in lbs	35 sq ft	1800 lbs	3 in	8-wire	28.5 (13)	\$1,099.95
	G-450XL	110 V	24 VAC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	\$269.95
	G-800S	110 VAC	24 VAC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	\$369.95
	G-800SDX	110 VAC	24 VAC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	\$469.95
	G-1000SDX	110 VAC	24 VAC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	\$569.95
	G-2800SDX	110 VAC	24 VAC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26(11.8)	\$1,099.95
	G-500A	110 VAC	24 VAC	61 sec	1740 in lbs	876 in lbs	11 sq ft		1.5 in	6-wire	5.5 (2.5)	\$309.95

\* 220 VAC models are available at additional costs

### G-450XL

The G-450XL is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap. A slight modification required for 220V operation.



### G-5400B

This is the most popular azimuth and elevation rotator for satellite, moonbounce or any other space communications work. It is a combination of the G400 and G500 rotators providing both horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other showing azimuth. Meter aiming accuracy is within ±4%. The G-5400B provides for full 180° elevation rotation with a rotation time of 58 seconds. A full 360° azimuth rotation can be achieved in just 50 seconds. This rotator will accept up to a 2.5" mast, a maximum 1-5/8" horizontal cross-boom and 440 pounds of vertical load. Suggested List Price \$589.95

### G-500A

This is an elevation rotator for satellite work. The control box shows elevation in degrees.

### Rotator Separation Kit

For some applications it is desirable to separate the azimuth from the elevation rotator on the tower. This separation kit provides all the hardware for the rotator to implement this separation. HRO Price \$30.95



### OR-2800



The M² Orion OR-2800 antenna rotator is engineered for long life, reliability and performance while turning large antennas or systems. Features include a strong ductile iron mast clamp, supports up to 3" masts, extended and hardened drive shaft and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower/rotor plates.

The RC2800 Control Box features digital readout, variable speed control, slow start, and reverse delay. The RC2800P adds programmability, preset, 2 rotator capacity, slow-start/coast-down, true AZ readout-continuous and infinite limit position control.

For larger antenna systems there is the optional PTA-1 Peak Torque Absorber unit which reduces instantaneous torque stresses to mast, tower, boom and rotator. The OR-2800 carries a 1 year warranty and is available from any HRO store. The unit is made in the U.S.A. Suggested List \$1099.95

Wind Area Capacity	35 sq ft
Starting Torque	3500 in lbs
Rotating Torque	2500 in lbs
Breaking Torque	17000 in lbs
Vertical Load Capacity	1800 lbs
Mast Size (O.D.)	1.75-3"
Rotational Speed (360)	70-140 sec
Readout Accuracy	1 degree
Input Voltage	110/220 AC 50/60 Hz
Motor Voltage	28 VAC
Cable Type	8 conductor
Weight (Rotator unit)	28.5 lbs

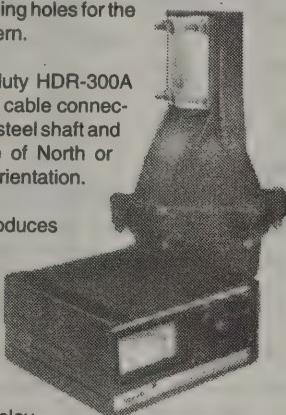
# CABLE & COAX

**hy-gain**  
by Telex

Hy-Gain rotators are the industry standard. Reliable operation, our one year limited warranty, and the best customer service in the industry make Hy-Gain rotators the choice of hams around the world. Unlike our competitors, every tower manufactured comes with mounting holes for the Hy-Gain bolt pattern.

The new heavy duty HDR-300A now has a control cable connector, new stainless steel shaft and features a choice of North or South centering orientation.

Hy-Gain also introduces the new DCU-1 Pathfinder, the first all digital rotator control box made in the USA. With six heading presets, automatic break delay and computer compatibility, the DCU-1 Pathfinder establishes a new standard for rotator systems.



## Pathfinder Digital Control System DCU-1

The DCU-1 features digital and analog displays with six presets letting you preprogram your favorite beam headings. The main ROTATE knob sets the target bearing within 1 degree. It's an all-in-one RS-232 computer interface unit and simple Basic program is included. Features include an automatic break delay, motor slow down, automatic calibration, programmable center of rotation. The DCU-1 may be paired with the T2X or HAMIV. Suggested List \$519.95



## The OWL

Want to keep those birds off your antenna system? The OWL is just the trick.

Mount this fella on top of your tower and the birds will stay away.

HRO Price \$19.95

## Connectors

### Connect Works

Model	Description	HRO Price
B-112XC	BNC for RG-b/X Gold Pin	\$3.99
BU-312	BNC to UHF Adptr (BNC-255)	\$5.99
NU-312	N to UHF Adptr (4400)	\$9.99
SB-312	SMA to BNC Adptr (for T-21A)	\$9.99
U-245C	4 hole SO-239 Chassis Connector	\$1.99
U-311	Double Male UHF (83-877)	\$6.99
U-322	UHF Barrel (83-1J)	\$4.99
U-332	Long UHF-UHF Barrel (83-1F)	\$6.99
U-412	RT. Angle Teflon, Gold Pin (83-1AP)	\$8.99
U-512C	UHF "T" (83-1T)	\$6.99
UB-312	BNC to UHF Adptr (31-28)	\$6.99
UN-312	UHF to N Adptr (14000)	\$15.99

## Rotator Cable

**Belden**

HRO carries three **Belden rotator cables**. Use standard duty cable for runs up to 100 feet. For longer runs, please use heavy duty cable. Remember, Belden quality is tops in the industry

**8 wire, standard duty - Model 8448** - 8 wire cable using 6 - #22 and 2 - #18 tinned copper conductors. PVC insulation; chrome PVC jacket.

**8 wire, heavy duty - Model 9405** - 8 wire cable using 6 - #18 m and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

### When Ordering Cable

Please order the cable in multiples of 50 feet. Lengths up to 1000 feet in a continuous spool can be provided.

Call Toll Free  
for HRO  
Discount Prices

## Coax

**Belden**

Coax can be purchased in any length up to 1000 feet. 1000' continuous lengths of 9913, 8214 and 8267 must be sent by truck. Call for Belden quotes.

### 8214 - RG8 / U

8214 is a standard RG8 / U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF and VHF / UHF. Use when long cable runs are not required.

### 8267 - RG213 / U

8267 is an RG-213 / U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF use and may be buried.

### 9913

9913 is RG8-type coax, #9.5 solid copper conductor, semi-solid polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications.

### 9258 - RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

### 9356 - RG8 / U

100' roll of 8214 RG8 / U coax with PL-259 connectors (crimp type) installed on each end for your convenience.

### 8000

14 strand "copper weld" bare copper wire. Great for long wires or dipole. High tensile strength.

## COAX-SEAL



Coax-seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over.



# CRANK-UP TUBULAR

## MA-SERIES CRANK-UP MASTS

The premier MA-Series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a Clean, flagpole-like appearance, while allowing for antennas up to 10 sq. feet in 50 mph winds. Per EIA Specifications, adequate safety margins are included. Uniform Building Code calculations are available for most models.

The MA-40 and 550 models come standard with flat base, two 1/2" x 10" anchor bolts, wall bracket and rotor plate mounted on top of top section. No guying is required when tower is properly bracketed to the eave of your roof.

MA-Series towers are completely self-supporting only when used with accessory MARB or MAB Series bases. The MARB Series rotor base allows the entire tower and antenna to be rotated from the base (rotor not included). This provides for easy rotor maintenance plus emergency hand rotation of the entire tower and antenna.

The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

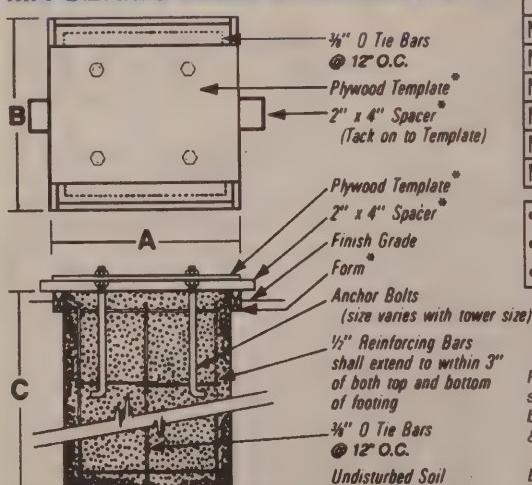
All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you loose your grip during raising or lowering.

All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
MA-40	40'	21'6"	2	242	3" sq.	4.5"	\$679.95
MA-550	55'	22'1"	3	435	3" sq.	6.625"	\$1,069.95
MA-550MDP	55'	22'1"	3	620	3" sq.	6.625"	\$2,619.95
MA-770	75'	22'10"	4	645	3" sq.	8.0"	\$2,259.95
MA-770MDP	75'	22'10"	4	830	3" sq.	8.0"	\$3,579.95
MA-850MDP	90'	23'6"	5	1128	3" sq.	10.0"	\$4,819.95

All Towers will handle 10 sq. ft antenna at 50 MPH winds.

## MA-SERIES BASE INFORMATION

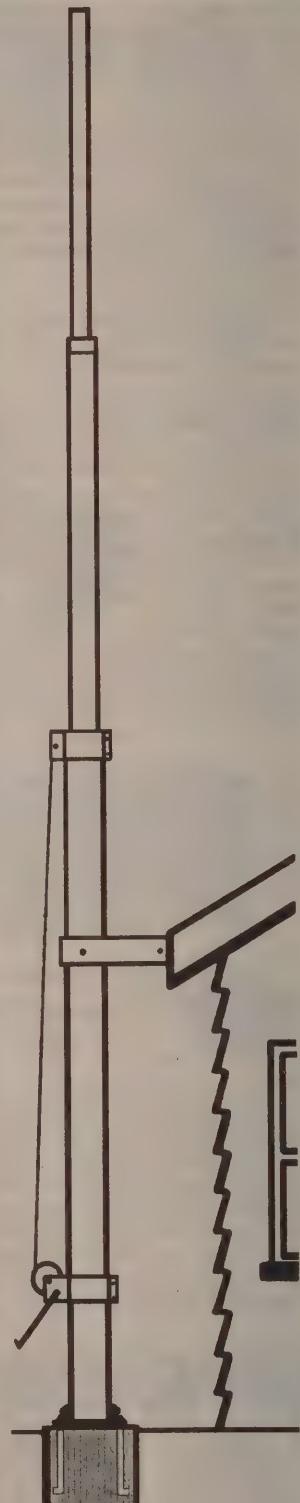


Model	A	B	C	HRO Price
MA-40 standard flat base	16"	16"	16"	CALL
MA-550 standard flat base	20"	20"	20"	CALL
MARB-40 Rotor Base	3'	3'	4'	\$499.95
MARB-550 Rotor Base	3'	3'	5'6"	\$579.95
MARB-770 Rotor Base	3'	3'	6'6"	\$689.95
MARB-850 Rotor Base	4'	4'	6'6"	\$819.95

- Base dimensions may vary with different soil composition
- Allow ample time for concrete to cure.
- MAB and MARB dimensions are the same.

Rebar is not provided by US Tower. MA-40 & 550 use their standard base as a template. These standard bases use only 2 bolts and require no rebar. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase.



# MA-SERIES ACCESSORIES

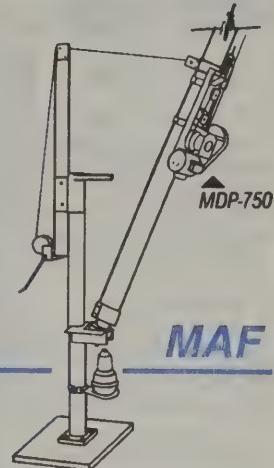
Model	Description	Weight
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## MAF Raising Fixture

MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

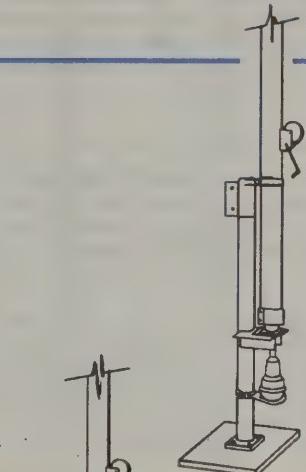
MAF-40	Raising Fixture for MA-40	35#
MAF-550	Raising Fixture for MA-550	70#
MAF-770	Raising Fixture for MA-770	75#
MAF-850	Raising Fixture for MA-850	80#

- The Customer is Responsible
- for obtaining all local city or county building and tower permits AND
- for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



## MARB Freestanding Rotator Base

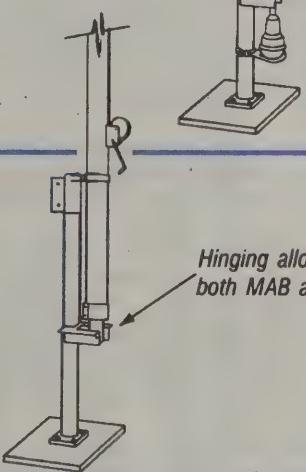
MARB-40	Freestanding Rotator Base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	75#
MARB-550	Freestanding Rotator Base for MA-550 with four 1" x 36" anchor bolts and thrust bearing	140#
MARB-770	Freestanding Rotator Base for MA-770 with four 1" x 36" anchor bolts and thrust bearing	195#
MARB-850	Freestanding Rotator Base for MA-850 with four 1-1/8" x 36" anchor bolts and thrust bearing	280#



MARB

## MAB Freestanding Type Base

MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 36" anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 36" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 36" anchor bolts	180#



MAB

## Coax Standoff Arms

CX-2M	Coax Standoff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax Standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#
IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with the MARB rotator base.	5#

Model	Description	Weight
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## Motor Drives

MD-75	Heavy-duty motor drive with one HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with one HP motor, gear box, and positive pull down.	185#

## Remote Control Accessories

RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#
MCL-100	Limit switch control package includes limit switches, limit switch brackets, and control box at the base of the tower.	7#

Call Toll-Free for Discounts on  
U.S. Towers and Accessories

## TMM SERIES

US Tower's latest design includes the compact TMM Series towers giving Hams in restricted areas an alternative. The TMM Series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the towers' retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.

The TMM Series towers are lightweight, freestanding crank-up towers that allow up to 18 square feet of antenna in 50 mph winds per EIA specifications. The TMM-433HD handles 24 square feet. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

## TX SERIES

US Tower's freestanding TX Series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX Series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind and conditions.

The TX Series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Towers crank-up towers have a heavy-duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX Series towers come complete with rotator plate and base hardware which includes, large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will

The TMM-433SS and 541SS must have the rotator top mounted. The TMM-433HD will accept the Alliance HD-73 and Telex Ham IV inside the tower. Oversized rotators will prevent full retraction of your tower; however, they may be used if full retraction is not required. This restriction is dependent on location of rotator plate. All TMM Series towers include anchor bolts, rotor plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120° antenna mast.

The TMM-433SS will accept the MD-75 motor drive accessory. The TMM-433HD and 541SS will accept the MD-75 and MDP-750 accessory motor drives. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

## HDX SERIES

US Tower's HDX Series heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX Series T-bases are designed to use our TRX Series raising fixtures to make installations and antenna servicing a one man job.

Modified top sections for the HDR-300 rotators are available at a small additional cost. US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX Series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-572MDPL comes only with limit switch brackets. The HDX-589MDPL comes com-

plete with the MCL-100, limit switch package. All towers using MDP-750 and MDPL-1000 motor drives may use the RMC-1000 accessory limit switch package which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location. MCL-100 is also available (see accessory page).

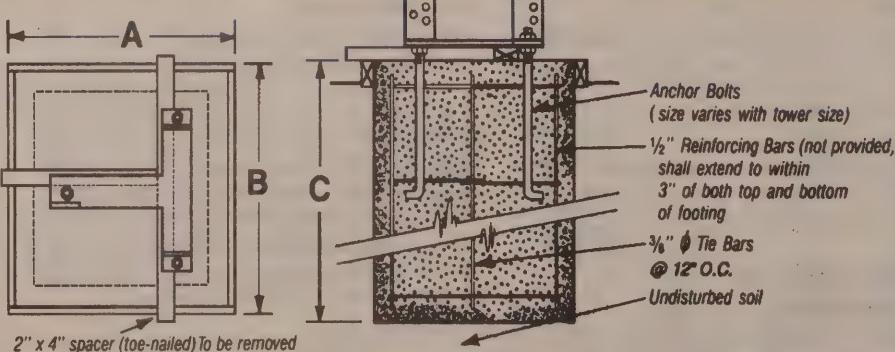
The TX-472MDP comes complete with MDP-750 motor drive and limit switch brackets. The TX-489MDPL includes the MDPL-1000 motor drive and limit switch brackets. Limit switch assemblies and remote raising devices are available (MCL-100) (RMC-1000) for all MDP-750 and MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX Series requires no guying. The wind loading is calculated at 18 square feet of antenna in 50 mph winds per EIA specifications. To assist you in applying for necessary construction permits, Uniform Building Code calculations are available for most models.

plete with the MCL-100, limit switch package. All towers using MDP-750 and MDPL-1000 motor drives may use the RMC-1000 accessory limit switch package which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location. MCL-100 is also available (see accessory page).

All HDX Series towers come complete with rotator plate, anchor bolts and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers do not require guy wires. The HDX Series towers are rated at 30 square feet of antenna at 50 mph winds per EIA specifications. To assist you in getting a construction permit, Uniform Building Code calculations are available for most towers.

## CRANK-UP TOWER BASE INFORMATION



Model	A	B	C
TMM-433SS	3'	3'	4'
TMM-541SS	3'	3'	4'6"
TMM-433HD	3'	3'	5'4"
TX-438	3'	3'	5'
TX-455	3'	3'	6'3"
TX-472	4'	4'	7'
TX-489	4'	4'	7'
HDX-538	3'	3'	6'3"
HDX-555	4'	4'	6'6"
HDX-572	4'	4'	7'
HDX-589	5'	5'	7'6"
HDX-689	5'	5'	8'6"
HDX-5106	5'	5'	8'6"

# SELF-SUPPORTING CRANK-UP TOWERS

## Tower Specifications

### COMPACT TMM-SERIES CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TMM-433SS	33' w/o Mas	11'4"	4	315	10"	18"	\$1,049.95
TMM-433HD	33' w/o Mas	11'4"	4	400	12.5"	20 7/8"	\$1,289.95
TMM-541SS	41' w/o Mas	12'	5	430	10"	20 7/8"	\$1,389.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds. TMM-433HD will handle 24 sq. ft.

### TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TX-438	38'	21'6"	2	355	12.5"	15"	\$999.95
TX-455	55'	21'	3	670	12.5"	18"	\$1,499.95
TX-472	72'	22'8"	4	1040	12.5"	21 5/8"	\$2,479.95
TX-472MDP	72'	22'8"	4	1210	12.5"	21 5/8"	\$3,999.95
TX-489	89'	23'4"	5	1590	12.5"	25 5/8"	\$4,299.95
TX-489MDPL	89'	23'4"	5	1800	12.5"	25 5/8"	\$6,439.95

All Towers will handle 18 sq. ft. antenna at 50 MPH winds.

### HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS

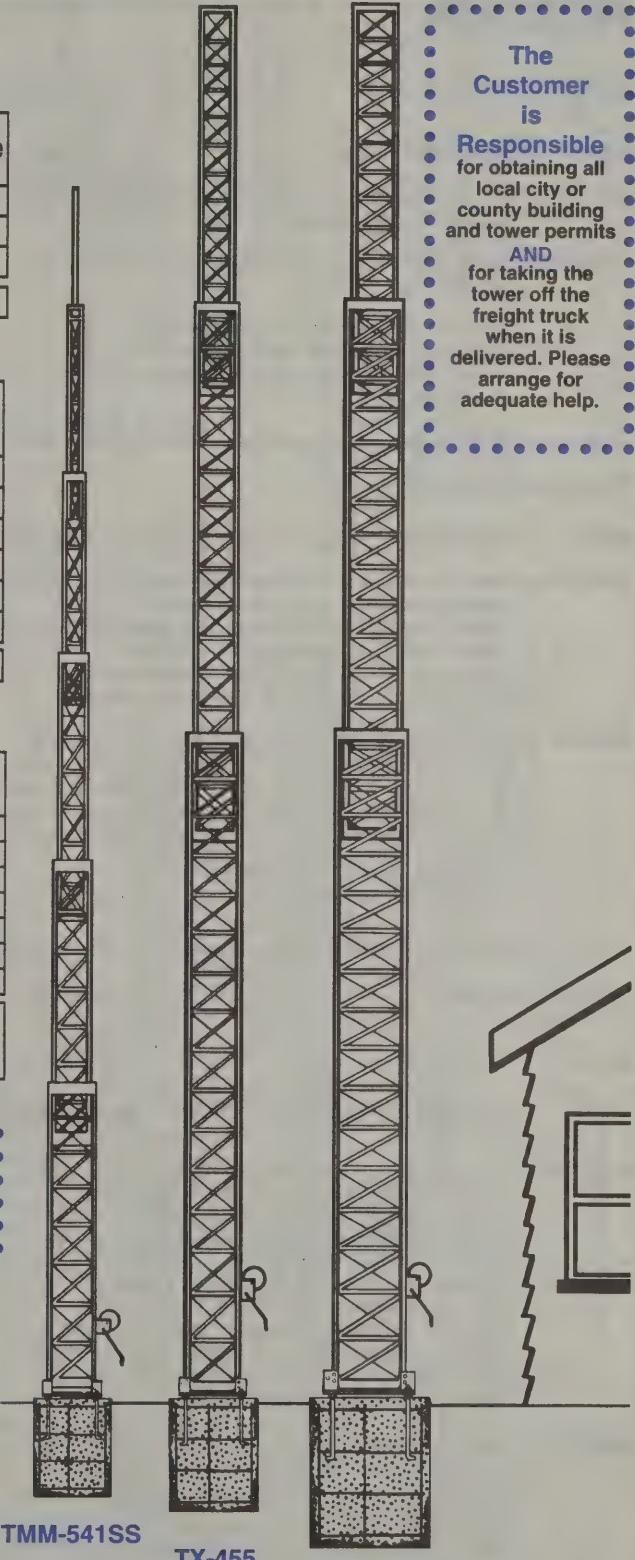
Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'6"	2	600	15"	18"	\$1,289.95
HDX-555	55'	22'	3	870	15"	21 5/8"	\$2,279.95
HDX-572	72'	22'8"	4	1420	15"	25 5/8"	\$3,869.95
HDX-572MDPL	72'	22'8"	4	1600	15"	25 5/8"	\$5,929.95
HDX-589MDPL	89'	23'8"	5	2440	15"	30 5/8"	\$7,729.95
HDX-689MDPL	89'	23'8"	5	3450	18"	37 1/8"	\$15,029.95
HDX-5106MDPL	106'	24'8"	6	3700	15"	37 1/8"	\$16,649.95

All Towers will handle 30 sq. ft. antenna at 50 MPH winds.

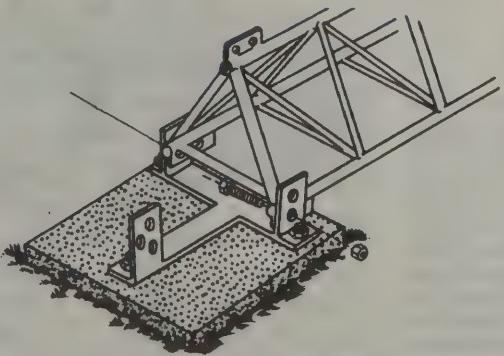
HDX-689MDPL rated at 60 sq. ft. of antenna at 50 mph winds.

HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

- The Customer is Responsible for obtaining all local city or county building and tower permits
- AND for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



Call Toll-Free for Discounts on  
Towers and Accessories

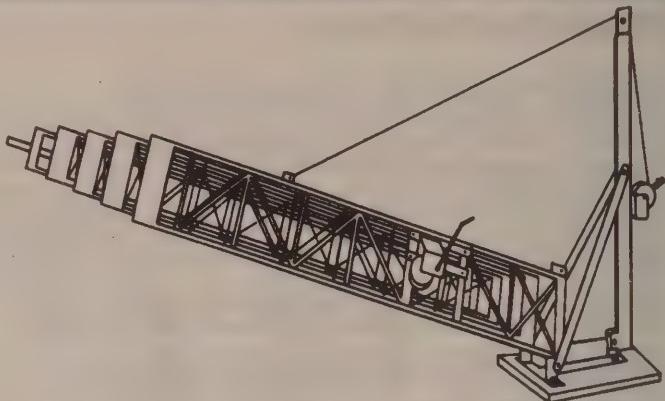


The factory reserves the right to make changes or modifications without notice.

## Raising Fixture

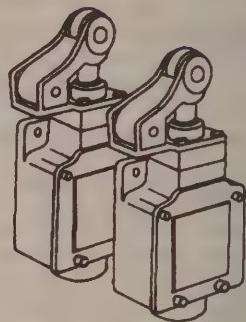
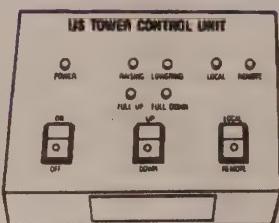
Model	Description	Weight
TRX-80	Standard model tower raising fixture for TMM, TX, and HDX series towers.	120#
TRX-80HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	155#

Both TRX-80 and 80HD are designed to be easily mounted on your tower's hinged T-base for quick and safe one-man installation or antenna servicing.



## Remote Control

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the MDP-750 and MDPL-1000 motor drives.	18#
MCL-100	Limit switch control package. The MCL-100 includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDPL-1000 motor drives.	7#

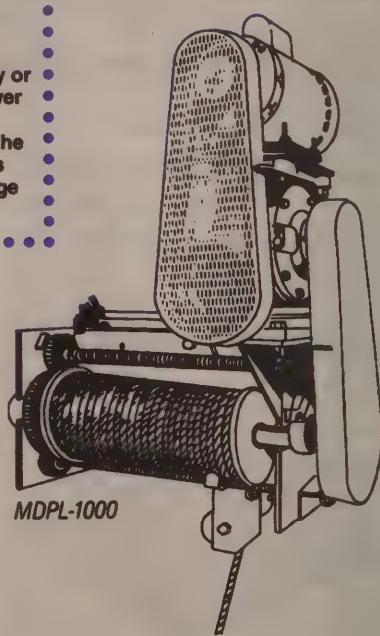


## Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with 1 HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs from the standard motor drive (MD-75) unit which releases tension on the cables allowing the weight of the upper sections to be the only lowering force.	185#
MDPL-1000	Heavy-duty motor drive with 1 HP motor, heavy duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the cable from overlapping on the drum. For description of positive pull down see MDP-750.	220#

### The Customer is Responsible

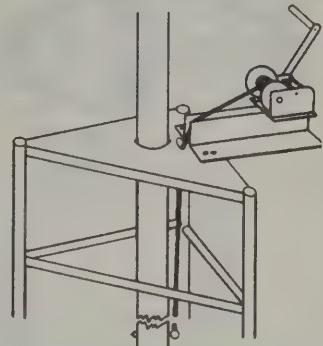
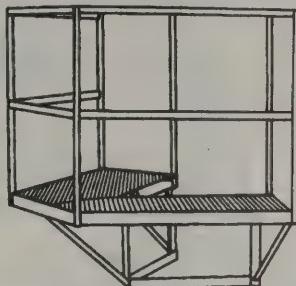
- for obtaining all local city or county building and tower permits **AND**
- for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.



Call factory for replacement 1 HP motors, handwinches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. Tower dolly rentals are available. The factory reserves the right to make changes or modifications without notice.

# CRANK-UP ACCESSORIES

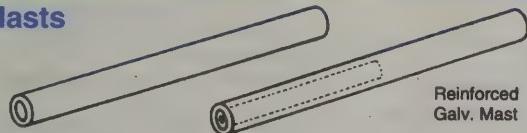
Model	Description	Weight
<b>Service Platform</b>		
HDP	Large service platform with safety railings to provide a safe and comfortable surface while installing or maintaining your antenna and rotator.	125#
MRF	Mast raising fixture with winch and cable that attaches to the top of your tower to assist in raising and lowering your antenna mast.	20#



## Coaxial Arm Sets

IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with MARB rotator base.	5#
CX-2	Set of 2 Coax Standoff Arms	6#
CX-3	Set of 3 Coax Standoff Arms	8#
CX-4	Set of 4 Coax Standoff Arms	10#
CX-5	Set of 5 Coax Standoff Arms	13#

## Masts



US Tower offers two different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250".

Model	Description	Weight
M-5	2" O.D. x 5 foot Galv Mast	14#
M-10	2" O.D. x 10 foot Galv Mast	25#
M-15	2" O.D. x 15 foot Galv Mast	40#
M-15R	2" O.D. x 15 foot reinforced Galv Mast	50#
M-20	2" O.D. x 20 foot Galv Mast	55#
M-20R	2" O.D. x 20 foot reinforced Galv Mast	70#
CM-20	2" O.D. x 20 foot .375 wall thickness chromemoly steel	130#
3/4" x 27"	Anchor Bolt with 2 nuts	5#
1" x 36"	Anchor Bolt with 2 nuts	10#
1-1/8" x 27"	Anchor Bolt with 2 nuts	12#
RP-3	Rotator Plate for 10" section	5#
RP-4	Rotator Plate for 12.5" section	7#
RP-5	Rotator Plate for 15" section	9#

## Thrust Bearing



TB-2US      Thrust Bearing for 2" mast, 2 flange holes

10#

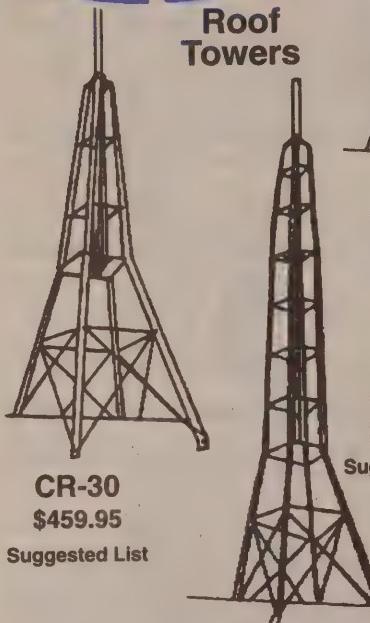
## Tower Accessories

	TX-438	TX-455	TX-472	TX-472MDP	TX-488	TX-488MDPL	HDX-338	HDX-555	HDX-572	HDX-572MDPL	HDX-588MDPL	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
<b>MASTS</b>															
M-5	O	O	O	O	O	O	O	O	O	O	O	S	S	S	\$36.00
M-8												CALL			
M-10	O	O	O	O	O	O	O	O	O	O	O	\$69.95			
M-15	O	O	O	O	O	O	O	O	O	O	O	\$92.95			
M-20	O	O	O	O	O	O	O	O	O	O	O	\$129.95			
M-15R	O	O	O	O	O	O	O	O	O	O	O	\$139.95			
M-20R	O	O	O	O	O	O	O	O	O	O	O	\$189.95			
CM-20	O	O	O	O	O	O	O	O	O	O	O	\$389.95			
<b>RAISING FIXTURE</b>															
TPX-80	O	O				O	O			O	O	\$389.95			
TRX-80HD		O	O	O			O	O	O			\$499.95			
<b>SERVICE PLATFORM</b>															
HDP	O	O	O	O	O	O	O	O	O	O	O	\$669.95			
<b>COAX STANOFF ARMS</b>															
CX-2	O					O						\$49.95			
CX-3	O					O						\$69.95			
CX-4	O	O				O	O			O	O	\$99.95			
CX-5		O	O				O	O	O	O	O	\$139.95			
<b>MOTOR DRIVES</b>															
MD-75	O	O				O	O			O	O	\$889.95			
MDP-750	O	O	S			O				O	O	\$1389.95			
MDPL-1000	O	O	S			O			O	S		\$1879.95			
<b>REMOTE CONTROL</b>															
RMC-1000	O	O	O	O	O	O	O	O	O	O	O	\$889.95			
MCL-100	O	O	O	S	O	O	S	S	O	O	O	\$79.95			
<b>MISCELLANEOUS</b>															
3/4" X 27" bolts	S									S	S	\$21.95			
1" X 36" bolts	S		S	S	S	S	S	S	S			\$28.95			
1-1/8" X 36" bolts	S	S	S	S	S	S	S	S	S			\$37.95			
RP-3										S	S	\$19.95			
RP-4	S	S	S	S	S	S	S	S	S			\$26.95			
RP-5						S	S	S	S			\$32.95			
MRF	O	O	O	O	O	O	O	O	O	O	O	\$249.95			
TB-2US	O	O	O	O	O	O	O	O	O	O	O	\$98.95			
IV-16	O	O	O	O	O	O	O	O	O	O	O	\$37.95			

# TOWERS



## Roof Towers



**CR-30**  
**\$459.95**

Suggested List

**CR-18**  
**\$259.95**

Suggested List

**CR-45**  
**\$589.95**

Suggested List

Create Roof Towers are constructed of high grade aluminum with galvanized steel bracing for added stability and strength. The towers will easily accommodate your antenna requirements. The three sizes will support VHF antennas, HF tri-banders and OSCAR systems. Rotators easily mount inside the tower. An optional thrust bearing (Model #CK46) is recommended. Guying is required on all roof towers. Maximum mast size is 2.5".

Model	Height	Max Antenna Wind Load in FT2	Base Width	Max Vertical Load in lbs.	Tower Weight in lbs.
CR-18	5'10"	21 @ 90 MPH	31 1/3"	440	18
CR-30	9'10"	27 @ 90 MPH	39"	1322	33
CR-45	14'9"	23 @ 90 MPH	39"	881	57

## Weather Station

## ULTIMETER II



The Ultimeter II is the ideal home weather station. It can be used to provide data for SKYWARN and A.R.E.S. It is fully compatible with the Automatic Packet Reporting System. It is constructed with a patented, super reliable, all digital wind sensor. It clamps to a mast without hardware. There is nothing to rust or corrode. The station features a unique point-and-plug direction calibration. An alarm tells you to crank down your tower when high winds threaten. More than 20 weather functions are provided. (Some functions require optional features.) HRO Price \$179.95

Options: Rain Gauge \$60.00  
Additional keyboard/display \$69.00  
Data Logger for PC \$69.00  
RFI filter \$17.00  
Static Electricity Discharge Unit \$17.00

## SWL Antennas

## Antenna Supermarket

### SWL Sloper

The SWL Sloper covers the popular SWL bands from 11-120 meters. Automatic band switching. SO-239 connector for attaching coaxial cable. HRO Price: \$79.95

### Eavesdropper™

This antenna is a high performance trapped dipole, 42 feet long, for the 11-60 meter SWL bands. Model "T" is fed with supplied 72 ohm balanced feed line. Model "C" will accept coax (not provided) requiring a PL-259 connector. HRO Price: \$79.95

## DYMEK DA100E

### The World's Most Respected Short-Wave Active Antenna

**Frequency Coverage:** 50 kHz to 30 MHz, continuous

**Antenna Height:** 4 feet 8" (142cm)

**Output Impedance:** Switch selectable 50,100, 500 ohms

**Power Required:** 110-120 or 220-240 VAC switch selectable, 50-60 Hz, 4 watts, or 12 VDC 0.4 Amp

### Dimensions:

**Power Supply:** 6.5" x 3" x 7.5" (WxHxD)  
(16.5 x 7.6 x 19cm)

**Antenna Module:** 3.75" x 4.375" x 2" (WxHxD) (9.5 x 11 x 5cm)

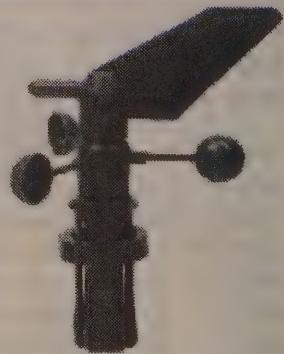
**Shipping Weight:** 9 lbs. (4.1 kg)

**Attenuation:** Switch selectable 0,10, 20 dB

**HRO Price:** \$179.95

### Other accessories available

- • • • •
- Check Out Our Low Discount Prices
- • • • •



# General Information for Our Valued Customers

## Easy Ordering

Six toll-free 800 numbers are available for orders. They are located throughout the United States. This provides personnel at one location or another to answer your questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

Shipments are made from any of our 12 locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods.

**California customers** can now order using a toll-free number. The number is 1-800-854-6046. It is no longer necessary for California customers to pay for the phone call.

## Sales Tax

State and Local laws require us to collect and remit State sales / use tax on orders shipped from any of our 12 locations INTO Arizona, California, Colorado, Georgia, or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

## Phone Orders

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO. We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

## Payment

We accept Visa, MasterCard and Discover Card. Personal checks are also accepted; however, processing time will delay shipment by some 10 days. When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

## COD Orders

COD payments must be made in cash, cashier's check, or money order at the time of delivery. There is a small fee for COD shipments.

## Commercial Sales Purchase Orders

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

## Delivery

All Alaska and Hawaii shipments via UPS must be shipped by Blue Label (2nd Day Air) or Red Label (Overnight). Please ask for charges.

**In a Hurry?** If you find it necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

**Foreign Deliveries** We ship world-wide. Contact our stores, preferably by fax with your needs. We can quote you and give you details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/MC Charge Cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, Emery, DHL, or International air mail. Some orders to some foreign countries cannot be insured to the full value.

**Truck Delivery** On day of delivery, if by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

**Canadian Orders** can now be shipped via UPS. These costs will be added to your invoice.

## Damaged Items

**UPS** If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge.

If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

**TRUCK** If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

**MAIL** It is the customer's responsibility to file all loss or damage claims with the postal department.

## Prices

Most prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the Dollar/Yen exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer.

## Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

## Lost Items

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

## New Equipment Returns

Products are not sold for evaluation. Under some circumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will make payment from its corporate offices and this can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Items returned for warranty replacement consideration must also include a completed, signed, "Warranty Replacement Certification Form." Customers who return equipment for replacement consideration without this form completed and signed cannot be considered for any possible warranty replacement, only warranty repair. No exceptions. Contact your salesman for details.

## Manufacturer's New Equipment Warranties

Ham Radio Outlet supports all manufacturers' warranties. Actual warranty terms are included with most items within the shipping container. If needed, you may request from any of our locations a free manufacturer's copy of the written terms for any specific warrantied product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide in-store repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

## New Equipment Warranty Returns

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping.

It is the customer's responsibility to ship all defective items to the service center for warranty repair.

## Problems

HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason, your problem cannot be corrected by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (510) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is corrected.

Thank You for choosing



The World's Largest Ham Outlet





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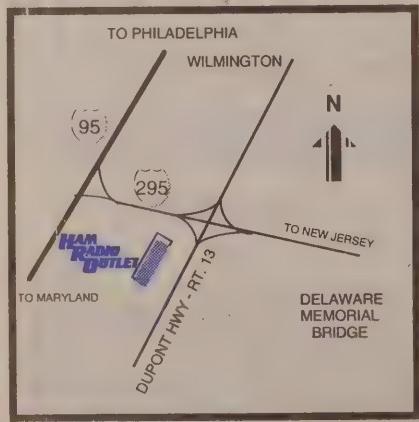
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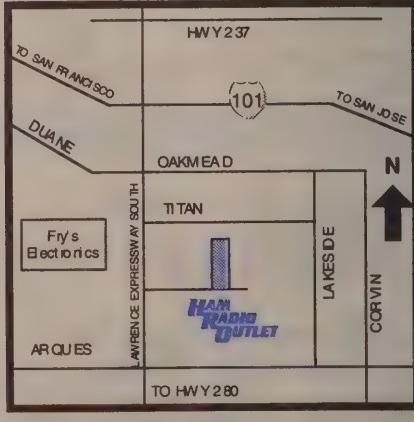
John N1IFL Mgr  
Jimmy KA3LLL  
Kent KD1IJ, Jim K3QIO  
Bob WN3K



**PORLTAD, OR 97223**

11705 S.W. Pacific Hwy (99W)  
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(800) 854-6046  
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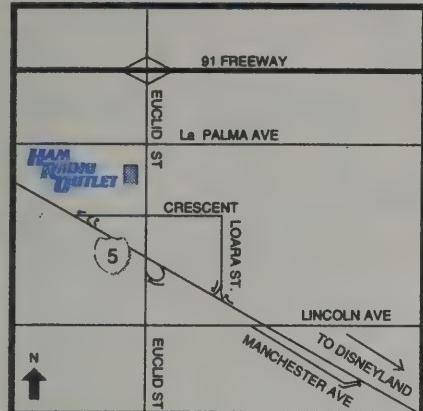
Earl KE7OA Mgr  
Jack KG7LX  
Ray KI7TN  
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MARK KE6OFP, Bill AA6PA,  
Warren WD6HDF



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Phil N4DRO  
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Rick WD4ABO  
Dennis KD4VHS



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John N5EHP  
Rick AA0ZB  
John KF0PQ  
Dean AC0S



#### OAKLAND, CA 94606

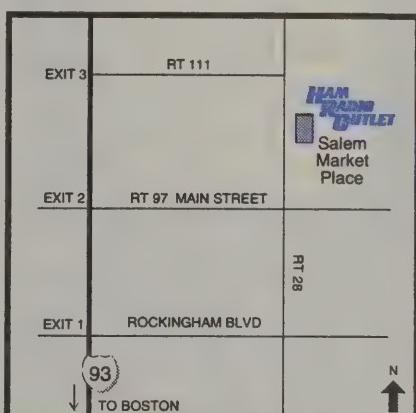
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Kathy N7AQH, Mike KB0QZ  
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Curtis BW4KZL  
Lou KC4HR  
Mike KA3TMQ  
John N4LJS, Tami

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**NEW  
DUAL BAND**

Dual Band Mobile **FT-8500**

# Never before has Yaesu technology changed an industry so dramatically.

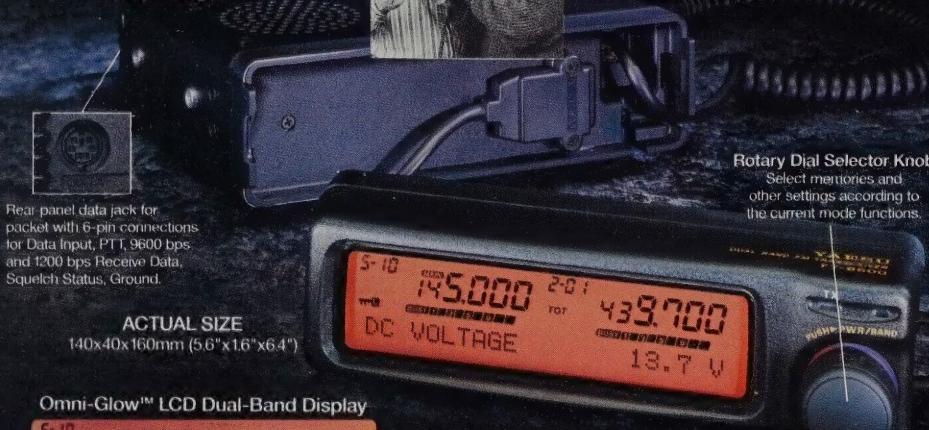
"With the Smart Controller Mic, all the radio functions are in your hand."

"And, look, the digital voltage display monitors my car battery voltage!"



"Spectra-Analyzer lets me check out channel activity in UHF, VHF, and keep track of my favorite repeaters, too."

"Yaesu did it again!"



Rear panel data jack for packet with 6-pin connections for Data Input, PTI, 9600 bps; and 1200 bps Receive Data, Squelch Status, Ground.

ACTUAL SIZE  
140x40x160mm (5.6"x1.6"x6.4")

## Omni-Glow™ LCD Dual-Band Display



## VHF&VHF, UHF&UHF, VHF&UHF

Select three dual band configurations. Menu loop contains 13 headings and 53 transceiver settings. Shown with custom 6-character alpha-numeric code.



Spectra-Analyzer™ displays station activity above and below the current operating channel. In Memory Recall, display signal strength of programmed channels.



Built-in digital voltage display monitors automobile battery voltage. Menu-selectable Packet Baud Rate. Choose 1200 or 9600 bps.

The FT-8500 and Smart Controller™ Microphone demonstrates Yaesu's world leadership position in 2-way radio communication again! With just four simple flicks of the Smart Controller™ Microphone "joystick"-type lever, you command over 50 separate functions from the palm of your hand! The FT-8500 defines "high-tech" in mobile radio engineering.

The Smart Controller™ Microphone



isn't the only engineering advancement. Watch the unique Spectra-Analyzer™ exhibit station activity above and below your current operating channel, and the digital voltage readout monitor your car battery voltage big and bold in the Omni-Glow™ display. In V+V, U+U or V+U view frequencies and custom alpha-numeric messages at the same time. Other features include handy cloning, selectable 1200/9600 baud, and a rear-panel data jack for packet! All of

## Specifications

- Frequency Coverage:  
2m RX: 110-174 MHz  
TX: 144-148 MHz  
70 cm RX: 420-500 MHz  
TX: 430-450 MHz
- Spectra-Analyzer™ w/adjustable signal width, spacing & span markers
- 6-Character Alpha-Numeric Display
- 110 Memories (in 5 memory banks)
- Omni-Glow™ Display
- Digital voltage display
- Selectable 1200/9600 baud
- 3-Level Auto-Mute w/Mute Timer
- V+V, U+U, V+U Dual Receive
- 3 Power Output Levels  
2 m 50/10/5 Watt  
70 cm 35/10/5 Watt
- Built-in Auto Power Off (APO) and Time-out Timer (TOT)
- MIL-STD 810/C Rating
- 9 Memory DTMF Autodialer
- Handy Cloning Feature
- 3 Scanning Modes w/ Clear Scan
- Adjustable LCD Contrast/Brightness Control
- Accessories:**  
Consult your local Yaesu dealer.

this and more in the deluxe, compact FT-8500.

The extraordinary FT-8500 Dual Band Mobile is at your Yaesu dealer now. Find out how this dramatic change will affect mobile technology for you from this day forward.

**YAESU**

Performance without compromise.™

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NEW HF

# Compact HF Transceiver **FT-900AT**

## Introducing an HF that's going places.

"With the small snap-off remote front panel design, it's an HF mobile."



"It's a great base, too. Direct keypad entry, built-in antenna tuner, CW keyer with adjustable speed, 100 Watts, Omni-Glow display... Wow!"

"Yaesu did it again!"

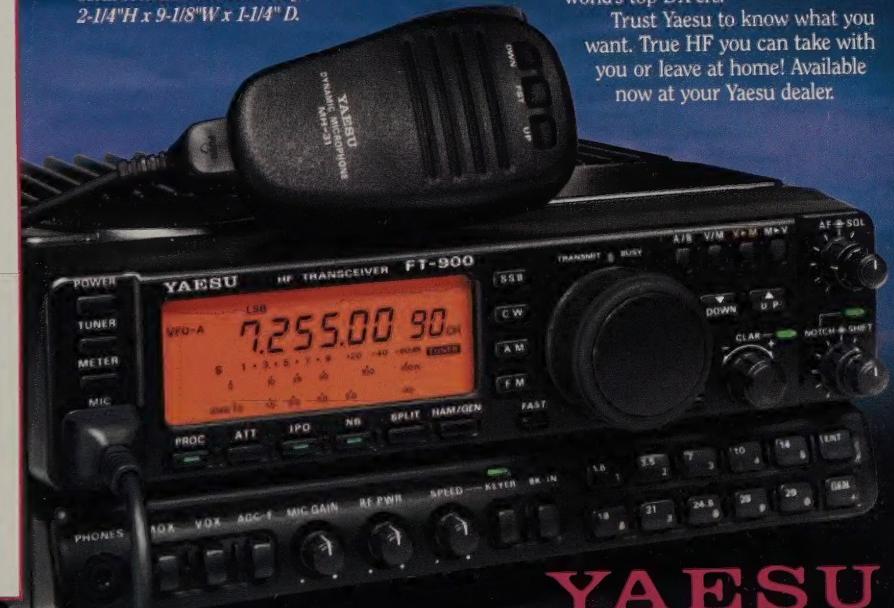
**U**ncompromising HF quality that will change your lifestyle. It's the first transceiver with true HF technology to go mobile in any vehicle or stay at home as a compact base station.

With its revolutionary, small, snap-off remote panel, the controls of the FT-900AT can install almost anywhere in your car, truck or camper. Since the 100 Watt RF deck can be installed under a seat or in your car trunk, it's away from critical automotive electronic wizardry. And, for ultimate convenience, the built-in antenna tuner simplifies in-car operation.

### Specifications

- Remote Front Panel Design
- Built-In Auto Antenna Tuner
- Direct Keypad Entry when used as a Base Station
- Large, Bright Omni-Glow™ LCD Display
- 100W on SSB, CW, FM modes; 25W on AM
- IF Shift and 30db Notch Filter
- Digital S/RF, SWR & ALC Meters
- Programmable CTCSS Encode w/Repeater Offset
- Direct Digital Synthesis (DDS)
- 100 Memory Channels
- Frequency Range
  - RX: 100 kHz-30 MHz
  - TX: 160-10 meters
- CW Full Break-in Keying w/ Adjustable Speed
- Fast/Slow AGC Circuit
- Intercept Point Optimization
- Duct Flow Cooling System
- Twin Band Stacking VFOs
- Built-In Noise Blanker
- Built-In Adjustable Speech Processor

**ACCESSORIES:**  
YSK-900 Remote Mount Kit  
MMB-62 Controller Bracket  
MMB-20 Mobile Mtg. Bracket  
SP-7 Mobile External Spkr.  
SP-6 Base Station External Spkr.  
DVS-2 Digital Voice Recorder  
FP-800 20A HD Power Supply  
YH-77ST Headphone



**YAESU**

Choice of the World's top DX'ers

NEW  
Dual Band HT

# Dual Band Handheld **FT-51R**

Only one Dial/Volume knob required for easier use.

**The First Dual Band HT with WINDOWS!**

Three dual receive configurations VHF/UHF, UHF/UHF or VHF/UHF with main band frequency on right or left side. Flexible programming allows transmit on main or sub band.

An 8 character alpha-numeric user help menu scrolls operation instructions in the bottom of the large, backlit display.

MH-29A2B  
LCD Display Mic with Remote Functions. (Optional)

FT-51R  
2 1/4" W x 4 1/4" H x 1 1/8" D  
(2 Watt version shown.)

Digital battery voltage readout displays condition of battery in use. Scan skip function allows individual memory channel lock out during scanning mode.

Spectrascope™ displays active adjacent frequencies in real time with relative signal strength.

The new FT-51R Dual Band HT is state-of-the-art, and easy to use! So easy, you won't need an operating manual. Its exclusive, scrolling instruction menu located in the large, backlit display "window", guides you through total operation while simultaneously viewing the main display window.

You'll like some of the other new, exclusive features, too. Like Spectrascope™. This unique feature displays real time, continuous scanning of activity on adjacent frequencies in VFO mode or 8 of your favorite memories. A cloning feature duplicates favorite channels to another FT-51R.

A digital battery voltage display, five power output levels, the largest backlit dual band HT keypad made, Smart Mute™, two VFOs on both VHF and UHF as well as available 2 Watt and 5 Watt versions, round out the exciting FT-51R. Plus, the optional MH-29A2B Display Microphone allows you to control volume and also access Memory, VFO, Call Channel, Band Selection and scanning functions. All of this in world's smallest dual band HT radio!

See the FT-51R with "windows" at your Yaesu dealer today!

"I can see two frequencies and alpha-numeric all at the same time."

"Scrolling instructions tell me what to do next!"

"I use the Spectrascope to find new contacts faster."

"Yaesu did it again!"

### Specifications

- Frequency Coverage
    - VHF RX: 110-180 MHz
    - TX: 144-148 MHz
    - UHF RX: 420-470 MHz
    - TX: 430-450 MHz
  - Spectrascope™ Display
  - Scrolling User Help Menu
  - Alpha-Numeric 8 Character Display
  - Up/Down Volume/Squelch Controls & Display
  - Selectable Sub-Band TX Mute
  - Automatic Tone Search (ATS)
  - Digital Battery Voltage Display
  - AM Aircraft Receive
  - Scanning Light System (SLS)
  - 120 Memory Channels (80 w/Alpha-Numeric)
  - Large Backlit Keypad & Display
  - Automatic Repeater Shift (ARS)
  - Multiple Scanning Modes
  - 3 Selectable Scan Stop Modes with Scan Skip
  - User selectable lock function w/15 combinations
  - Automatic Power Off (APO)
  - TX/RX Battery Savers Built-in
  - Handy Cloning Feature
  - 5 Selectable Power Output Levels
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  - Cross-Band & One-Way Repeat Functions
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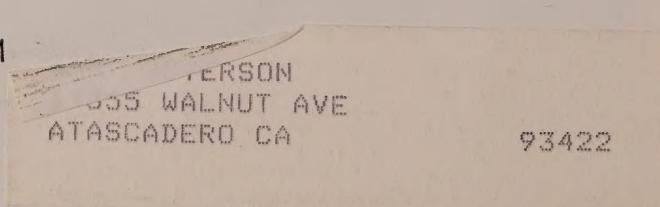
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